
Meridian 1 Network Management for SPECTRUM

User Guide

Document Release: Preliminary
Date: January 1997

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Revision history

January 1997

Preliminary, release 0.1

January 1997

Preliminary, release 0.2

February 1997

Preliminary, release 0.3

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Introduction

Meridian 1 Network Management (MNM)

Meridian 1 Network Management (MNM) for SPECTRUM is an application for managing Meridian 1 networks. The development of MNM is the first step in integrating voice and data network management for Nortel enterprise customers. MNM runs on Cabletron's SPECTRUM (Windows NT/Unix).

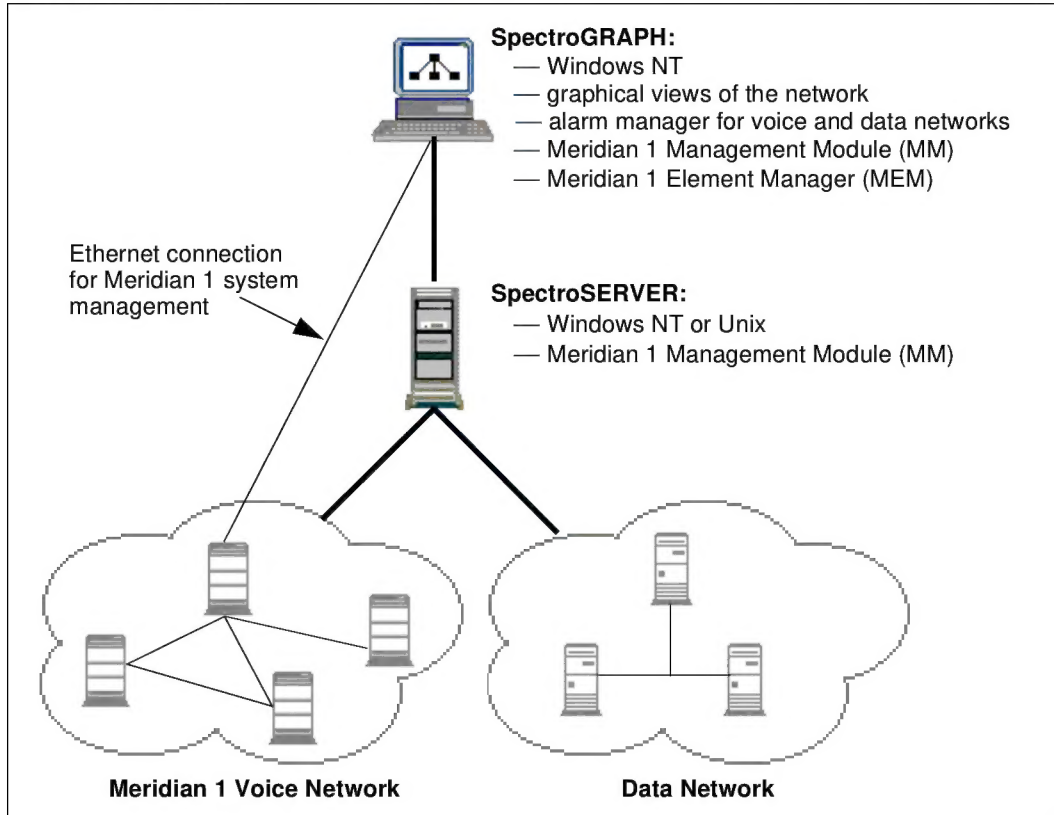
SPECTRUM is an open network management platform. Using MNM, network operators can monitor and manage alarms from Meridian 1 networks as well as their data networks. The current release of MNM provides alarm monitoring function on Windows NT/Unix and alarm and Meridian 1 system management functions on Windows NT.

Meridian 1 Network Management for SPECTRUM enables an integrated solution to monitor voice and data networks of an enterprise. Operators can monitor the alarms from both voice and data networks on the same platform and in the same window. In addition, an operator will be able to exercise the alarm and system management functions of Meridian 1 from the same workstation. Using SPECTRUM, users can also manage Magellan Passport ATM enterprise switches, MSL-100 voice switches, and Meridian Passport switches.

Enterprise Network

The enterprise network includes data elements (routers, bridges, and data switches) and voice elements (Meridian 1) of the enterprise. Meridian 1 X11 Release 22 software provides the support to manage Meridian 1s from an open enterprise network management system.

Figure 1
Enterprise Network



Cabletron's SPECTRUM

SPECTRUM is an open management system based on client-server architecture. It runs on multiple platforms including Sun (OS and Solaris), and Windows NT.

SPECTRUM consists of both server (SpectroSERVER) and client (SpectroGRAPH) platforms. Each server can serve multiple clients and each client can connect to multiple servers. Typically, each server manages a segment of the enterprise network. The server and client component of SPECTRUM can run on the same workstation.

SpectroSERVER

SpectroSERVER communicates with the network elements for the purpose of managing the network and collecting alarms. The data from the network elements are gathered and stored in a database in the SpectroSERVER.

SpectroGRAPH

SpectroGRAPH is one of the clients of SpectroSERVER. It provides a suite of network management applications, such as:

- Graphical views of the enterprise network showing the alarm condition of network elements. Meridian 1s icons can be added to any graphical view of the network.
- Network Alarm Manager listing all alarms from the enterprise network, including Meridian 1s.
- Meridian 1 Element Manager (MEM) to manage the selected Meridian 1. MEM only runs on SpectroGRAPHs with the Windows NT platform.
- SpectroPHONE
- Remedy Trouble Ticketing
- SPECTRUM Report Generator
- SPECTRUM Alarm Notification Manager

Meridian 1 Management Module (MM)

Meridian 1 MM includes a set of functions to handle SNMP traps from the Meridian 1s in the network and a set of data files that enable the modeling of Meridian 1 on SpectroGRAPH.

There are two different components of Meridian 1 MM. One resides on SpectroGRAPH and the other resides on SpectroSERVER.

Meridian 1 Element Manager

The Meridian 1 Element Manager (MEM) provides a suite of applications for managing the selected Meridian 1. The following applications are accessed by double clicking on the MEM icon in the SpectroGRAPH graphical views:

Events Window — allows you to view, acknowledge, and clear alarms in the selected Meridian 1.

Alarm Banner — alerts you to the number of new critical, major, and minor alarms in the selected Meridian 1.

Event Preferences — allows you to customize the severity of individual alarms.

Maintenance Windows — allows you to view the status of Meridian 1 hardware and perform maintenance functions such as enable and disable.

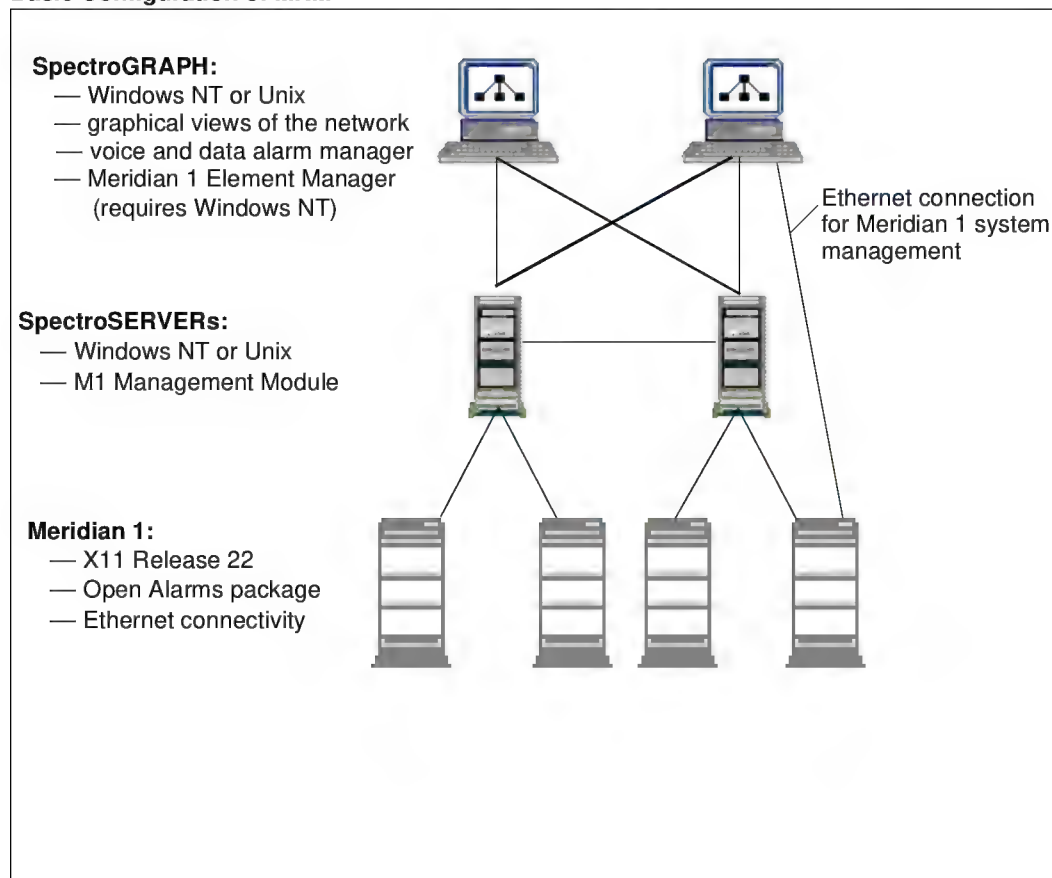
System Terminal — allows you to perform any administration or maintenance overlay task with extensive context sensitive help.

MNM Configuration

Figure 2 shows a typical configuration of Meridian 1 Network Management for SPECTRUM.

In MNM for SPECTRUM all connections are through Ethernet.

Figure 2
Basic Configuration of MNM



MNM users

This user guide describes how to install and use the Meridian 1 MNM for SPECTRUM. Refer to the appropriate SPECTRUM documentation to install and use SPECTRUM components.

This guide is intended for users who have a working knowledge of Meridian 1 switches and general telecommunications concepts.

Conventions used in this manual

This manual uses the following typographical conventions:

- Angle brackets denote a single keyboard key. For example, **<Esc>** denotes the Escape key, labeled **Esc** on PC keyboards. A series of angle brackets denote keyboard keys to use simultaneously.
- **This font** is used to designate information you are to enter, buttons you are to click, or menu selections you are to choose.
- Hot keys—Menu commands are available using both the mouse and the keyboard. Menu items show one letter as underlined. To choose an item with the keyboard, press the **<Alt>** key and the underlined key at the same time. For example, **<Alt>F** denotes the key sequence for opening the **File** menu.

Installing MNM for SPECTRUM

This chapter describes how to install and prepare SPECTRUM and the Meridian 1s for operation.

SPECTRUM Installation

There are two main software components to install on the SpectroSERVER and SpectroGRAPH platforms:

- Meridian 1 Management Module (MM)
- Meridian 1 Element Manager (MEM)

The MM and MEM components are contained on the MNM installation CD. Installation includes the following steps:

- 1** Install MM software on all SpectroSERVERs collecting alarms from Meriden 1s.
- 2** Install MM software on all SpectroGRAPHS serving Meridian 1s.
- 3** Install MEM software on SpectroGRAPHS (Windows NT) Meridian 1s.

For complete details of the installation, see *readme.txt* on the installation CD. These installation procedures assume the SPECTRUM components are installed and operational. See the appropriate SPECTRUM documentation.

Meridian 1 Installation and Configuration

This sections guides you through the preparation of the software and communications hardware on the Meridian 1. Communications between your PC and the Meridian 1 occur over Ethernet.

Meridian 1 Requirements

MNM requires the following Meridian 1 system configuration:

- X11 release 22, configured with the following packages:
 - 164 - Limited Access to Overlays
 - 242 - Multi-User
 - 243 - Alarm Filter
 - 296 - Meridian Administration Tools
 - 315 - Open Alarms
- 48MB of memory on the Meridian 1.
- Upgrade IOP cards (Part number NT6D63BA) or IOP/CMDU cards (Part number (NT5D20BA). (Not applicable to Option 11C systems).
- One or two Ethernet AUI cables (Part number NT7D90DA). You will attach one cable to each IOP.
- Two (2) Ethernet transceivers (different types for 10BaseT and 10Base2 cabling). You will attach one transceiver to each AUI cable.
- Ethernet communications cable, as follows:
 - 10BaseT cabling requires Category 5 cable with RJ45 connectors
 - Although normal phone cable and Category 5 cable are similar in appearance, phone cable is not acceptable for network applications.
 - 10Base2 cabling requires RG58 cable with BNC connectors.

Note: Although normal video coaxial cable and RG58 cable are similar in appearance, video cable is not acceptable for network applications.

- If you are using the 10BaseT interface, an Ethernet hub is required.

Note: If you plan to connect your M1 to another network, you must use an Ethernet gateway server. Connecting the network without a gateway will adversely affect the M1 call handling ability.

Supported Systems

The following Meridian 1 systems are supported:

- Option 11C
- Option 51C
- Option 61C
- Option 81
- Option 81C

Step 1: Configuring Users on the Meridian 1

This section steps you through Meridian 1 configuration. User input is shown in bold following the “>” prompt. For example, > **ld 17**.

- 1 Configure LAPW. MEM communicates with the Meridian 1 through LAPW IDs and passwords configured on the Meridian 1.

>**logi (enter your LAPW userID)**

PASS?> **(enter the level 1 or level 2 password)**

WARNING: THE PROGRAMS AND DATA STORED ON THIS SYSTEM ARE LICENSED TO OR ARE THE PROPERTY OF NT/BNR AND ARE LAWFULLY AVAILABLE ONLY TO AUTHORIZED USERS FOR APPROVED PURPOSES. UNAUTHORIZED ACCESS TO ANY PROGRAM OR DATA ON SYSTEM IS NOT PERMITTED. THIS SYSTEM MAY BE MONITORED AT ANY TIME FOR OPERATIONAL REASONS. THEREFORE, IF YOU ARE NOT AN AUTHORIZED USER, DO NOT ATTEMPT TO LOGIN.

TTY #00 LOGGED IN 15:02 9/7/1996

The following section is only required if login names is not configured.

>**ld 17**

CFN000

MEM AVAIL: (U/P): 3352174 USED: 203153 TOT: 3555327
DISK RECS AVAIL: 2764

DCH	AVAIL:	15	USED:	1	TOT:	16
AML	AVAIL:	10	USED:	0	TOT:	10

REQ> **chg**

TYPE> **pwd**

```
PWD2 (your level 2 password)
LNAME_OPTION> yes

MEM AVAIL: (U/P): 3352174 USED: 203153 TOT: 3555327
DISK RECS AVAIL: 2764
DCH  AVAIL:    15    USED:    1    TOT:    16
AML  AVAIL:    10    USED:    0    TOT:    10

DEFAULT LOGIN NAMES SAVED
```

Note: At this point, your old passwords will work with either the newly assigned user IDs or with the default user ID values associated with your old passwords. See the online help for LD17, LNAME_OPTION for more information. Please alert others of any changes; for example, all technicians with access to the Meridian 1, the Distributor, and so on.

2 Continue configuring LAPW:

```
REQ> chg
TYPE> pwd
PWD2 (enter your level 2 password)
LNAME_OPTION> yes
NPW1
LOGIN_NAME
NPW2
LOGIN_NAME
LOUT
LAPW> 88 (example)
PW88
LOGIN_NAME> johns
OVLA> all
OVLA
CUST> all
CUST
HOST
MAT> yes
MAT_READ_ONLY> no
OPT
LAPW
FLTH
LOCK
FLTA
AUDT
LLID
INIT
```

```
MEM AVAIL: (U/P): 3352149 USED: 203178 TOT: 3555327
DISK RECS AVAIL: 2764
DCH  AVAIL:    15    USED:    1    TOT:    16
AML  AVAIL:    10    USED:    0    TOT:    10
REQ> end
```

Step 2: Configuring pseudo TTYs on the Meridian 1

- 1 Configure one or more pseudo TTYs (PTY). PTYs are required for Maintenance Windows and the System Terminal (each require a PTY if they run at the same time). The Events window does not require a PTY.

If you have enough free ports, NORTEL recommends that you configure at least two PTYs. You can allocate a maximum of 8 PTYs (maximum of 4 PTYs on an Option 11C).

Find an empty tty slot:

```
>Id 22
```

```
PT2000
```

```
REQ> prt
```

```
TYPE> adan
```

```
ADAN      TTY 0
CTYP CPSI
DNUM 3
PORT 0
DES
BPS 9600
BITL 8
STOP 1
PARY NONE
FLOW NO
USER MTC TRF SCH BUG
XSM NO TTYLOG      0
BANR YES
```

```
ADAN      TTY 1
CTYP CPSI
DNUM 4
PORT 1
•
• etc.
•
```

```
ADAN      AML 1
          CTYP ESDI
          DNUM 15
          DES  MMAIL
          •
          • etc.
          •

ADAN      DCH 20
          CTYP MSDL
          DNUM 5
          PORT 3
          DES  TO-THOR
          •
          • etc.
          •
```

- 2 Find an empty TTY (0-15) and device number (DNUM). Choose a PTY number 0-7. In this example, we find TTY 13 to be free, and assign PTY 0.

```
LD 17
REQ> chg
TYPE> adan
ADAN> new tty 13
CTYP> pty
PORT> 0
DNUM> 13
DES> new pty
FLOW
USER> mtc bug sch
TTYLOG
BANR

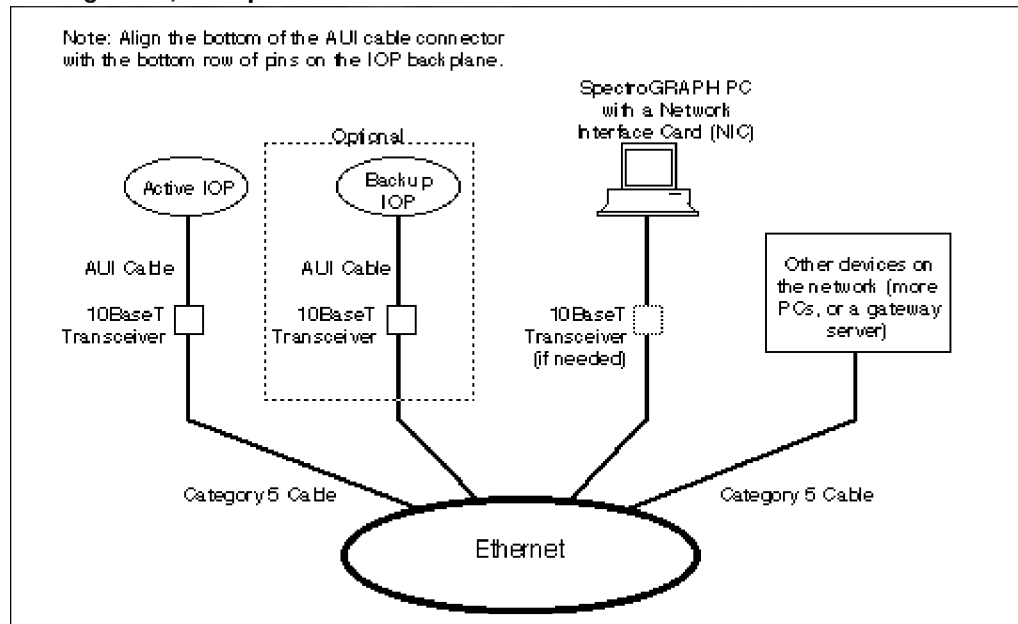
MEM AVAIL: (U/P): 3345946 USED: 209381 TOT: 3555327
DISK RECS AVAIL: 2764
DCH  AVAIL:    15    USED:    1    TOT:    16
AML  AVAIL:   10USED:    0    TOT:    10

ADAN DATA SAVED
ADAN> end
```

Step 3: Installing the Ethernet Connections on the Meridian 1

This section outlines the physical connections required for Ethernet communications. See Figure 3 and Figure 4 for the details of cabling connections

Figure 3
Cabling Detail, Example 10BaseT Installation

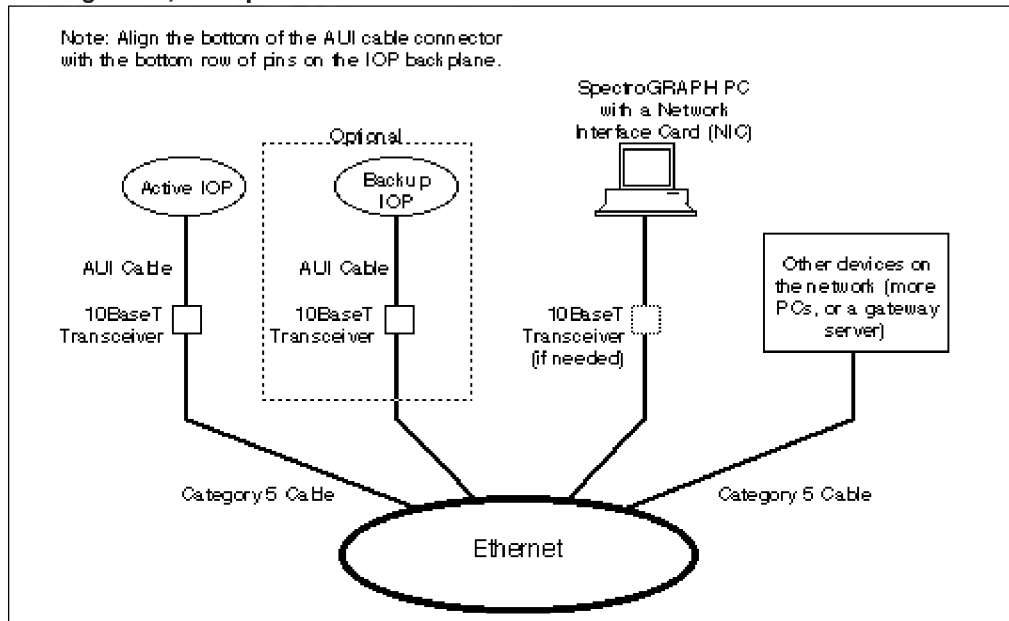


10BaseT Cabling Notes

- The bottom of the AUI cable connector must line up with the bottom row of pins on the Meridian 1 backplane.
- Ethernet transceivers are required at each AUI cable. Turn off the **SQE Test** switch on the transceiver, if equipped.
- An Ethernet hub is required. Hubs require external power (usually a power supply that plugs into a wall outlet).
- 10BaseT cabling requires Category 5 cable with RJ45 connectors

Note: Although normal phone cable and Category 5 cable are similar in appearance, phone cable is not acceptable for network applications.

Figure 4
Cabling Detail, Example 10Base2 Installation



10Base2 Cabling Notes

- Each end of the network cable must have a terminator attached. Use a T-connector at each end of the network cable to allow you to install the terminators.
- The bottom of the AUI cable connector must line up with the bottom row of pins on the Meridian 1 backplane.
- Ethernet transceivers are required at each AUI cable. Turn off the **SQE Test** switch on the transceiver, if equipped.
- The PC connection requires a transceiver if the NIC port is AUI D-connector type. If the NIC connection is BNC type, connect a T-connector to the NIC and connect the RG58 cable to the connector.
- 10Base2 cabling requires RG58 cable with BNC connectors.

Note: Although normal television video coaxial cable and RG58 cable are similar in appearance, video coaxial cable is not acceptable for network applications.

Troubleshooting Ethernet Connections

When you have completed Ethernet configuration and cabling, test Ethernet communications by “pinging” the various network devices to verify that you can communicate between them.

- 1 At the PC, start a DOS window.
- 2 Enter: **ping 47.1.1.10** (ping the active IOP—IP address 47.1.1.10 in our example)
- 3 If you receive a response, ping the other devices in the network to verify their connections.
- 4 If you cannot ping successfully, follow these troubleshooting steps:
 - Verify that the IOP part number is NT6D63BA. If you are using Option 11C, check the Ethernet connection.
 - Check that the AUI cable is installed correctly, as follows:
 - Verify that the connector is in the same slot as the IOP
 - The bottom of the AUI cable connector must line up with the bottom row of pins on the Meridian 1 backplane
 - Ethernet transceivers are required at each AUI cable. Turn off the **SQE Test** switch on the transceiver, if equipped.
 - Swapping the transmit and receive pins in the category 5 cable is not a workable substitution for an Ethernet hub. A hub is required.

If you complete these steps, and still cannot ping successfully, review all steps outlined in this installation guide to verify proper connections and configuration.

Step 4: Configuring Ethernet on the Meridian 1

- 1 Configure Ethernet on the Meridian 1.

```
>LD 117
>NEW HOST <host name> <Primary IP address>
>CHG ELNK ACTIVE <host name>
>CHG MASK <network mask>
```

Repeat the process if you use a backup (inactive) IOP.

```
>LD 117
>NEW HOST <host name> <Secondary IP address>
>CHG ELNK INACTIVE <host name>
>CHG MASK <network mask>
```

Note: To see the new entries, type **PRT ELNK**

- 2 If you have a default gateway in the network, define the routing table. The routing table provides the Meridian 1 with the IP address of the gateway server so that the Meridian 1 can send return messages to the gateway for forwarding to the requesting client.

```
>LD 117
NEW ROUTE 0.0.0.0 <gateway IP address>
```

- 3 Backup the changes by doing a data dump.

```
>LD 43
.EDD
```

- 4 Perform an init.

Step 5: Directing SNMP traps to SpectroSERVER

Up to 8 SpectroSERVERs can receive SNMP traps from the Meridian 1 simultaneously. All Meridian 1 alarms and events are sent to one or more SpectroSERVERs.

- 1 Print the existing SpectroSERVERs.

```
>LD 117  
>prt open_alarm
```

- 2 Add one or more SpectroSERVERs.

```
>LD 117  
>set open_alarm <slot number> <IP address>
```

Where the slot is the index 0 to 7 for each SpectroSERVER, and IP address is the network address of the SpectroSERVER. Reusing the slot number will overwrite the current values. The IP address of 0.0.0.0 will remove the entry.

Meridian 1 Operational Notes

Ethernet connections to the Meridian 1 change the standard operating procedures. Please see the following Product Bulletins.

X11 Parallel Upgrade Process with Ethernet

Product bulletin 96048

Ethernet Access to the Meridian 1

Product bulletin 96044

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Managing Meridian 1s in the Network

Viewing Meridian 1s in the network

Meridian 1s are represented as icons in the SPECTRUM graphical views of the network. The icon displays the alarm condition of the Meridian 1 and can be used to:

- 1 Open the M1 System window to perform management activities on the Meridian 1.
- 2 View the device configuration, or the Meridian 1 Management Information Base (MIB) as stored by SPECTRUM.

Figure 5
MEM icon in SPECTRUM

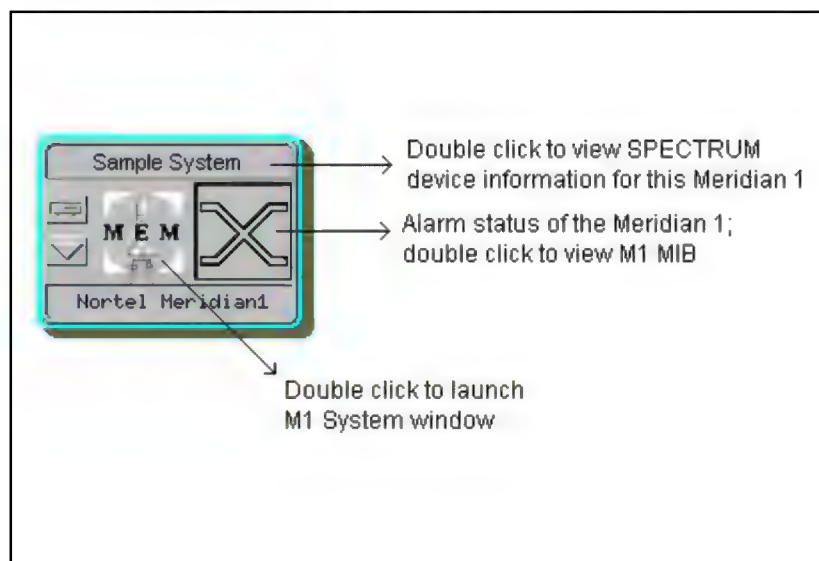


Table 1 shows the possible conditions of the M1 icon.

Table 1
M1 Icon Conditions

Color	Status
Blue	Initial - No contact has ever been made with Meridian 1 since the model was created.
Green	Good - Contact established, no pending alarms from Meridian 1.
Yellow	Minor Alarm - The highest severity of the pending alarms is equal to minor.
Orange	Major or Critical alarm - The highest severity of the pending alarm is equal to major or critical.
Red	Lost Contact - Contact lost between Meridian 1 and SpectroSERVER. This does not necessarily mean the switch is down.

Modeling Meridian 1s in SPECTRUM

In SPECTRUM, each managed network element is modeled as an object instance. This object instance is referred to as “model”. An Meridian 1 model must be created in SPECTRUM before the Meridian 1 can be managed.

- 1 Start SpectroGRAPH and open the graphical view on which the Meridian 1 is to be added.

Note: Refer to SPECTRUM documentation for basic start-up and operation of SpectroGRAPH.

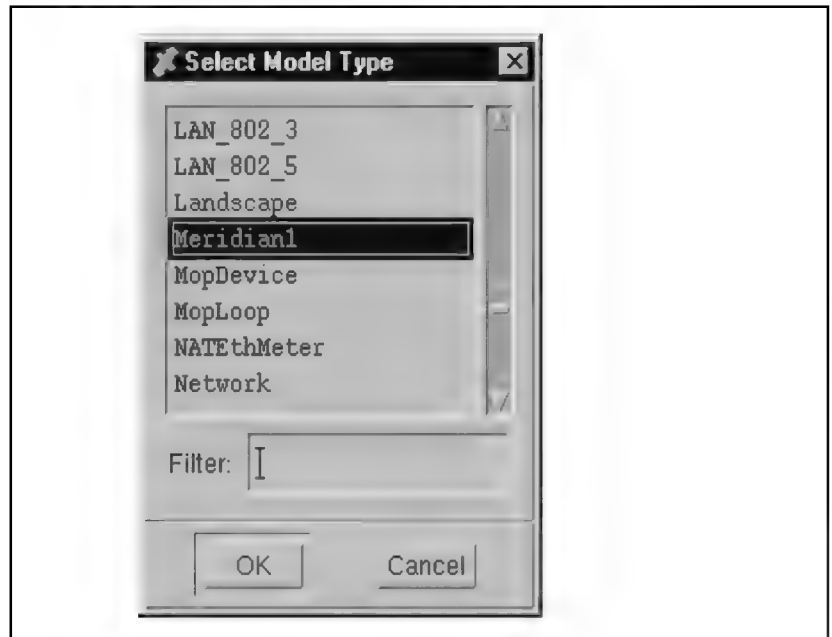
- 2 Choose **MEM Synchronizer** from the **File** menu.

The synchronizer copies the Meridian 1 configuration information into the MEM database. This is required to launch the M1 System Window.

- 3 Choose **New Model** from the **Edit** menu.

- 4 Select **Meridian1** in the list and click **OK**.

Figure 6
Model Type dialog



- 5 Fill in the **Creating Meridian1** dialog and click **OK**. The following fields are mandatory

- Model Name (16 characters)
- Network Address
- SL1 Release must 22
- SL1 Machine Type must be 11C, 51C, 61C, 81030, or 81040
- Device type must be **Switch**

The new M1 icon is placed on the current SPECTRUM graphical view. SPECTRUM starts receiving events (SNMP traps) from the Meridian 1 once the communication is established between the Meridian 1 and the SpectroSERVER.

Figure 7
Creating Meridian1 dialog

Creating Meridian1

Creation View

Model Name: Sample System

Network Address: 47.11.43.15

Community Name:

Location:

Contact:

Serial Number:

Security String:

Polling Interval: 300

SL1 Release: 22

SL1 Issue: 7

SL1 Machine Type: 51C

Log Ratio: 10

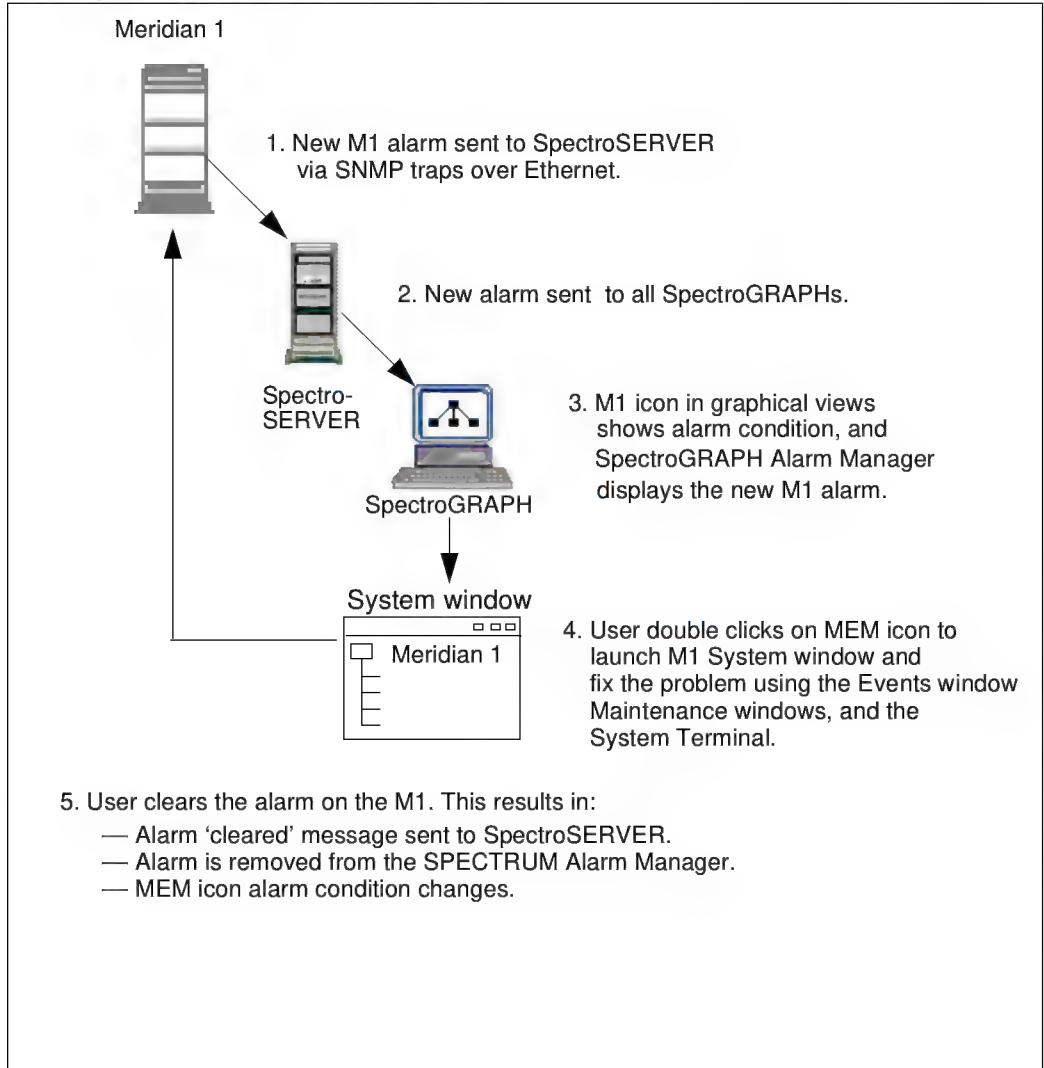
Device Type: Switch

OK Cancel

Viewing and Managing Alarms in the Network

Figure 8 shows a typical operation of Meridian 1 Network Management for SPECTRUM.

Figure 8
Basic Operation of MNM



How Alarms are Handled by Meridian 1 and SPECTRUM

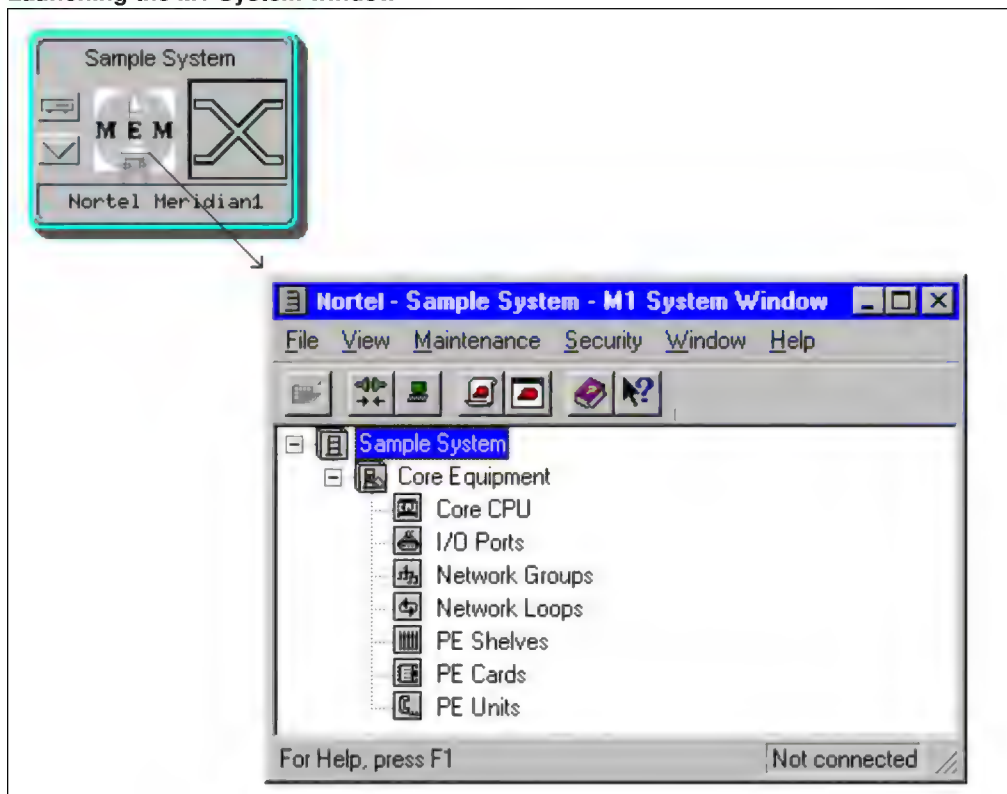
The following items provide background information on the handling of alarms.

- The SPECTRUM Alarm Manager displays all alarms in the enterprise network, including Meridian 1 alarms.
- SPECTRUM Alarm Manager only displays the alarms received since the Meridian 1 model was created. In addition, alarms generated while the connection is down are not displayed. In other words, SPECTRUM does not retrieve the entire set of alarms from the Meridian 1.
- The Meridian 1 Events window displays all alarms and events on the Meridian 1. This includes cleared alarms. The event file is circular, such that older events are over-written by new events. The size of the event file is defined in overlay 117.
- Meridian 1 uses the concept of events; events with a severity of critical, major, and minor are considered alarms.
- Meridian 1 allows the user to acknowledge alarms. This is similar to assigning an alarm to user in SPECTRUM. To see the userID of the person who has acknowledged an alarm, select the alarm and **Properties** in the File menu of the Events window.
- Clearing a Meridian 1 alarm on the SPECTRUM Alarm Manager *does not* clear the alarm in the Meridian 1. Only the SpectroServer database is updated.
- Clearing an alarm in the M1 Events window clears the alarm in the SPECTRUM Alarm Manager. The status of the alarms is updated for all users viewing the Events window for the Meridian 1.
- Loss of communication with the Meridian 1 is considered a network critical alarm and is only cleared when the connection is reestablished. Loss of communication with the Meridian 1 does not necessarily mean the Meridian 1 is down.
- The Meridian 1 Event Preferences window can be used to redefine Meridian 1 events to reduce the number of minor alarms appearing in the SPECTRUM Alarm Manager. For example, change the often occurring minor alarms to severity of "Information".

M1 System Window

The Meridian 1 System window is launched from SPECTRUM by double clicking on the letters “MEM” in Meridian 1 icon. The System window is shown below.

Figure 9
Launching the M1 System window



The M1 System window allows you to launch the following applications.

Events Window — a window to view, acknowledge, and clear all events and alarms for the selected Meridian 1.

Alarm Banner — alerts you to the number of new critical, major, and minor alarms in the system event.

Event Preferences — allows you customize the severity of individual events.

System Terminal — allows you perform any administration or maintenance overlay task with extensive context sensitive help.

Maintenance Windows — allows you view and maintain Meridian 1 hardware. The hardware is organized into the following windows:

- CPU window
- I/O Ports window
- Network Groups window (not applicable for Option 11C)
- Network Loops window
- IPE Shelves window (not applicable for Option 11C)
- PE Cards window
- PE Units window
- PRI Channels window

System window menus

The following tables detail the menus available in the system window.

Table 2
File menu

Command	Description
Open	Opens the selected application.
Session Connect	Establishes a connection to the system.
Session Disconnect	Disconnects the system.
Update System Data	Updates system properties on the PC by coping this information from the switch. This is not used with MEM.
Close	Closes the System window and all related windows.

Table 3
View menu

Command	Description
Status Bar	Displays or hides the Status Bar.
Toolbar	Displays or hides the Toolbar.

Table 4
Maintenance menu

Command	Description
Alarm Banner	Launches the Alarm Banner application.
Events	Launches the Events application.
System Terminal	Launches the System Terminal application. See "System Terminal" on page 85.

Table 5
Security menu

Command	Description
Connected Users	Displays the list of users currently connected to this system.

Table 6
Window menu

Command	Description
Arrange	Arranges the system's windows in a cascade fashion. The Alarm Banner is not affected.
Close Related Windows	Closes all windows belonging to this system (except the System window itself).

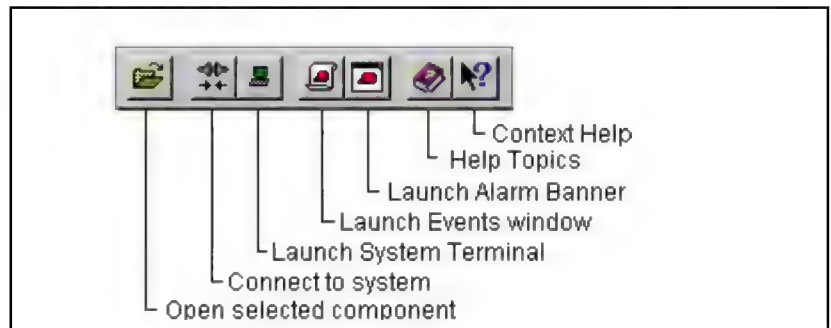
Table 7
Help menu

Command	Description
Topics	Displays the index of help topics.
What's This?	Provides context-sensitive help on the next item you select in the tree, any pull-down menu item, or toolbar icon. Clicking anywhere else takes you to the first topic in the help topic list. This operation is also available in the right mouse button popup menu.
About System Window	Displays software version information for the System window.

Toolbar

The System window toolbar includes several useful buttons. The function of each button in the toolbar appears when you move the mouse over the button. See Figure 10.

Figure 10
System window Toolbar



Responding to a connection failure

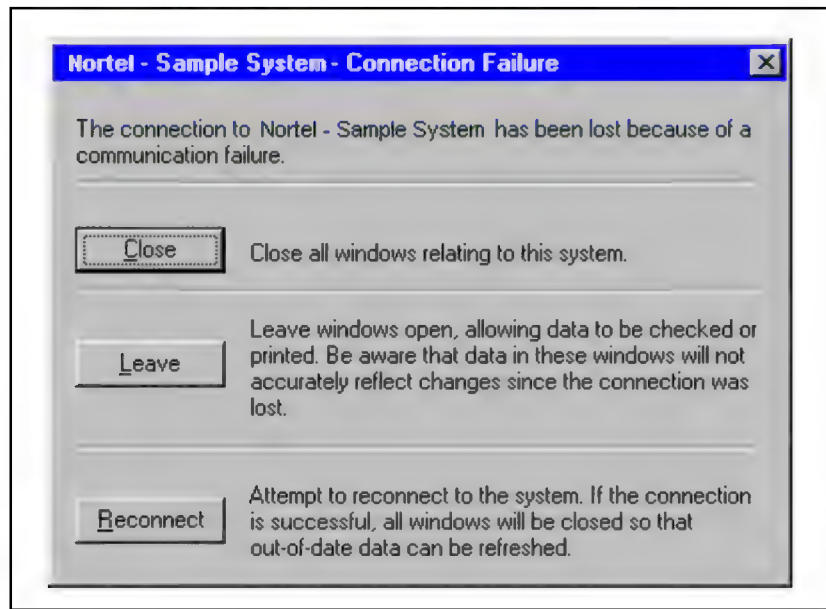
If you are connected to a M1 system and that connection fails, a warning message appears. See Figure 11. You are given the following options:

- Close all system windows and reconnect to the system
- Leave the system windows open so that you can copy or print any or all of the following information:
 - Command results in the System Terminal window or any open Maintenance window.
 - Alarms or events in the System Event Log.
 - Maintenance window objects, such as network loops.

Note: When you have finished printing the desired information, close the system window and reconnect to the system.

- Attempt to reconnect to the system.

Figure 11
Connection Failure dialog



Alarm and Event Management

Alarm and Event Management consists of following components to improve handling of system-generated alarms and events.

Events Window — a window to view, acknowledge, and clear all events and alarms for the selected Meridian 1.

Alarm Banner — alerts you to the number of new critical, major, and minor alarms in the system event.

Event Preferences — allows you customize the severity of individual events.

Events window

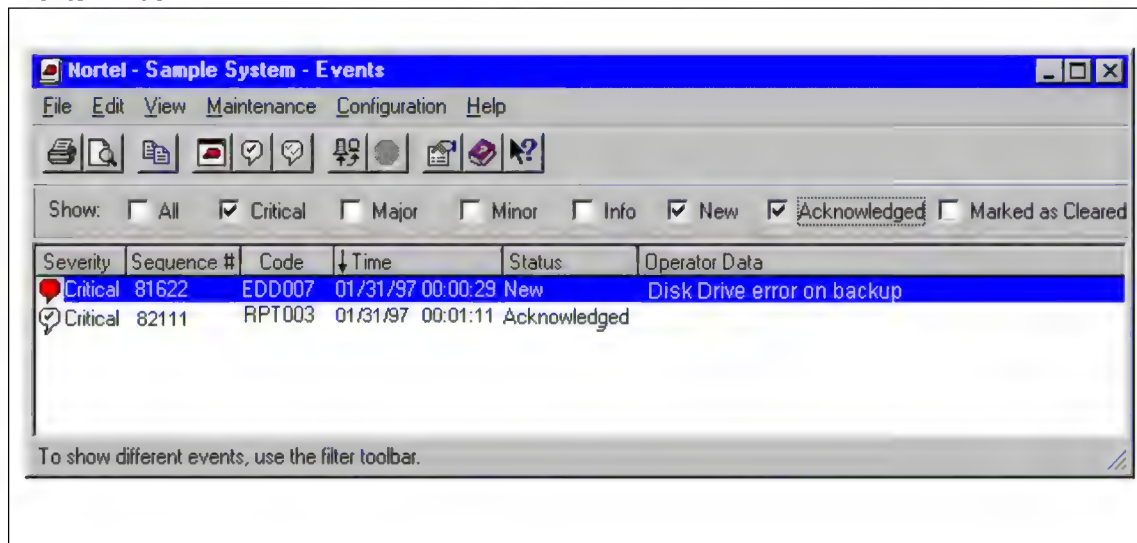
The Events window displays the Meridian 1 system's circular event log to allow you to view all recent system alarms and events (previously stored in the Meridian 1 history file). The Events window displays active events in a way that lets you quickly view the most important events.

System events with a severity of critical, major, or minor are considered alarms—alarms are actionable events. System events with a severity of info are not considered alarms—info events are non-actionable.

Launching the Events window

From the **Maintenance** menu of the System window, select **Events**. If you are not connected to the Meridian 1, the connection login window appears to allow you to connect. Once you have connected, the Events window appears as shown in Figure 12.

Figure 12
Events Window



Using the Events window

The Events window allows you to view, acknowledge, and clear alarms, and view event preferences. (System events with a severity of critical, major, or minor are considered alarms.) Once you have fixed a problem, you can clear that alarm from the list.

Once you open the Events window, you can perform the following tasks:

- Sort and filter the list to locate an alarm to identify the cause of the problem
- Acknowledge an alarm you intend to clear—this communicates your intention to others who may be working on the system
- Learn more detail about an alarm
- Clear an alarm from the list after you have corrected the problem
- Change the severity of an alarm (This action applies to subsequent alarms—not those already in the list.)
- Get help with any command or data field with a few clicks of the mouse

Using the Filter toolbar

Use the Filter toolbar to select the types of alarms or events that you wish to display in the list. Figure 13 shows the Filter toolbar. Click to check (or uncheck) an item. For example, you would check **New** and **Critical** to restrict the list to alarms that are new and critical. You can drag the Filter Toolbar to the top or bottom of the window.

Figure 13
Filter toolbar



Sorting the event list

Alarms and events are listed in order of occurrence (they are sorted according to the Sequence number column). You can resort the list according to another column by clicking in that column heading. This is useful for prioritizing your work when dealing with a large number of alarms.

Click to sort in ascending order; click again for descending order. An arrow in the column heading indicates the current sort column and sort order.

Getting more detail on an alarm

If the data does not all fit in a column, you can resize a column by dragging the column divider. You can also use **Properties** in the **File** menu to display complete information about a selected event.

Double click on an alarm to see reference information in Windows Help.

New critical alarms are indicated by a red balloon icon. The icon turns white with a check mark when the alarm is acknowledged.

Using shortcuts

You can perform the following common tasks from the right mouse button popup menu:

- **Copy** an alarm
- **Select All** alarms
- **Acknowledge** an alarm
- **Mark as Cleared**
- Learn the **Properties** of an alarm
- **What's This?** general help option

Alarm descriptions

The Events window provides several columns of information about each active alarm. You can resize a column by dragging the column divider to make more room for text. Table 8 describes each column.

Table 8
Columns in the Events window

Column	Description
Severity	The alarm severity (critical, major, or minor) or a non-alarm event (information). An icon indicates an unacknowledged critical alarm.
Sequence #	All events are given a unique number in the order they occur.
Code	A code that identifies the event. It includes the error category (for example NWS300) and a five-digit error number.
Time	The date and time that the alarm occurred.
Status	Current alarm status (appears blank for non-alarms). New indicates an alarm has not been acknowledged or cleared. Acknowledged indicates an alarm in the process of being cleared. Marked as Cleared indicates the alarm has been manually cleared. Use Properties in the File menu to see the UserID of the person who acknowledged or cleared the alarm.
Operator Data	Data produced by the equipment that generated the event. Contents may vary. Typically includes a description of the event and the equipment affected (component ID information, such as the loop number or TN).

Determining the cause of an alarm

An alarm may be caused by another system event, such as a **BUG** message. By examining the events immediately preceding an alarm, you may be able to isolate the source of the problem. Use the scroll bar to browse through the event list. To display help on a selected alarm, double-click the alarm.

Learning more detail about an alarm

You can use the following methods to learn more about selected alarms:

- Select **Properties** in the **File** menu or click the **Properties** button to see all information for the selected alarm.
- Double click on an alarm to see reference information in Windows Help.

Acknowledging an alarm that you intend to clear

You can acknowledge a new alarm to inform others that you will investigate the problem and clear the alarm. Your acknowledgment appears in the **Status** field of the Events window.

Note: You cannot acknowledge events with a status of **Info**, or events that have been marked as cleared.

To acknowledge an alarm:

- 1 Select the desired alarm(s).

You can use the checkboxes at the top of the window to restrict the list to certain types of alarms. Use **<Shift>-click** to select a range of alarms. Use **<Ctrl>-click** to select multiple alarms. To select all alarms, choose **Select All** from the **Edit** menu.

- 2 Choose **Acknowledge** from the **Maintenance** menu or the right mouse button.

Once you acknowledge an alarm, the Status field for all selected alarms in the Events window is marked "Acknowledged." The status of the alarm is updated for other users viewing the Events window for this system. The SPECTRUM alarm browser is also updated.

Marking an Alarm as Cleared

After you fix a problem, you will typically mark the associated alarm as cleared. The term *Mark as Cleared* is used because clearing an alarm only changes its status—it does not actually fix the problem.

To mark alarms as cleared:

- 1 Select one or more alarms in the Events window. You can use the checkboxes at the bottom of the window to restrict the list to certain types of alarms. Use <Shift>-click to select a range of alarms. Use Ctrl-click to select multiple alarms. To select all alarms, choose **Select All** from the **Edit** menu.

Note: You can usually save time by displaying the type of alarm of interest using the Filter bar before selecting individual alarms.

- 2 Select **Mark as Cleared** in the **Maintenance** menu.

Once you acknowledge an alarm, the Status field for all selected alarms in the Events window is marked "Acknowledged." The status of the alarm is updated for other users viewing the Events window for this system. The SPECTRUM alarm browser is also updated.

Acknowledging and clearing alarms is optional. You can clear alarms without first acknowledging them. If you do not clear alarms, the oldest alarms are expired by the system when it reaches the maximum number of alarms.

Note: It is recommended that you clear alarms as you fix problems so that the Events window accurately reflects the state of the system.

Events window menus

The following tables detail the menus available in the Events window.

Table 9
File menu

Command	Description
Print <Ctrl>P	Prints the command results.
Print Preview	Displays the information on the screen as it would appear in print.
Print Setup	Selects a printer and printer connection.
Reports	Opens a dialog for printing selected reports.
Properties	Opens a dialog displaying all properties of the selected event.
Close	Closes the Events windows.

Table 10
Edit menu

Command	Description
Copy <Ctrl>C	Moves a copy of selected events to the clipboard.
Select All <Ctrl>A	Selects all events in the window.

Table 11
View menu

Command	Description
Toolbar	Displays or hides the Toolbar.
Filter Toolbar	Displays or hides the Filter Toolbar.
Status Bar	Displays or hides the Status Bar.

Table 12
Maintenance menu

Command	Description
Acknowledge	Marks the selected event as acknowledged. The status is updated for all users viewing the Events window. Use Properties in the File menu to see the user who acknowledged the event.
Mark as Cleared	Marks the selected event as cleared. The status field is updated for all users viewing the Events window. Use Properties in the File menu to see the user who cleared the event.
Reload	Starts reloading all events again.
Stop Loading	Stops the loading of events from the Meridian 1. The most recent events are loaded first.
Alarm Banner	Launches the Alarm Banner

Table 13
Configuration menu

Command	Description
Event Preferences	Launches the Event Preferences window.

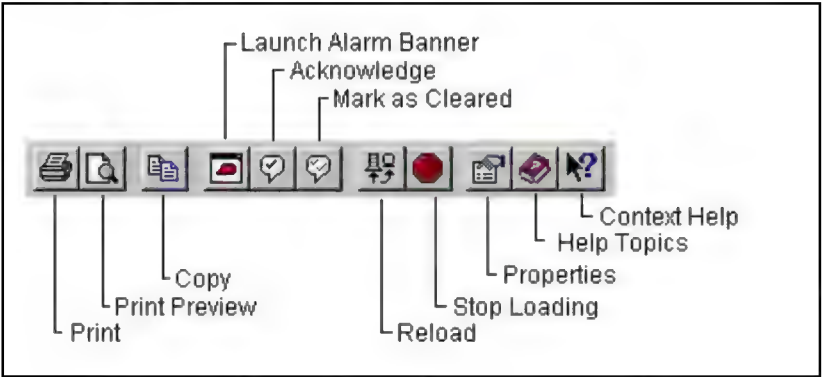
Table 14
Help menu

Command	Description
Topics	Displays the index of help topics.
What's This?	Provides context-sensitive help on the next item you select in the tree, any pull-down menu item, or toolbar icon. Clicking anywhere else takes you to the first topic in the help topic list. This operation is also available in the right mouse button popup menu.
About Events	Displays software version information for the Events window

Events toolbar

Use the Events toolbar to perform many of the commands in the Events window menus. Each button in the toolbar is documented in **What's This** help.

Figure 14
Events Toolbar



Alarm Banner

The Alarm Banner alerts you to the number of new critical, major, and minor alarms in the system event log. A new critical alarm causes the critical alarm count in the Alarm Banner to flash. The Alarm Banner window also provides the count of current unacknowledged alarms.

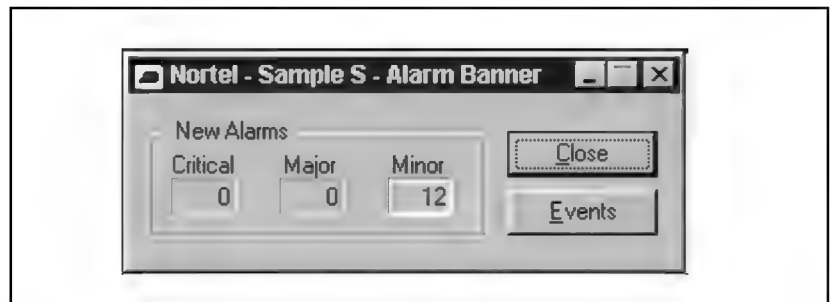
If you wish to learn more about an alarm, press the **Events** button to launch the System Events window. If there are no alarms, you can log out or leave the Alarm Banner displayed and go on to another task.

When a new alarm arrives, the count is incremented appropriately. When a new critical alarm arrives, the Alarm Banner flashes the critical severity count. The flashing continues until you acknowledge or clear the new alarms.

Launching the Alarm Banner

From the **Maintenance** menu of the System window, select **Alarm Banner**. Alternately, you can double-click the **Alarm Banner** icon in the System window toolbar. The Alarm Banner window appears as shown in Figure 15.

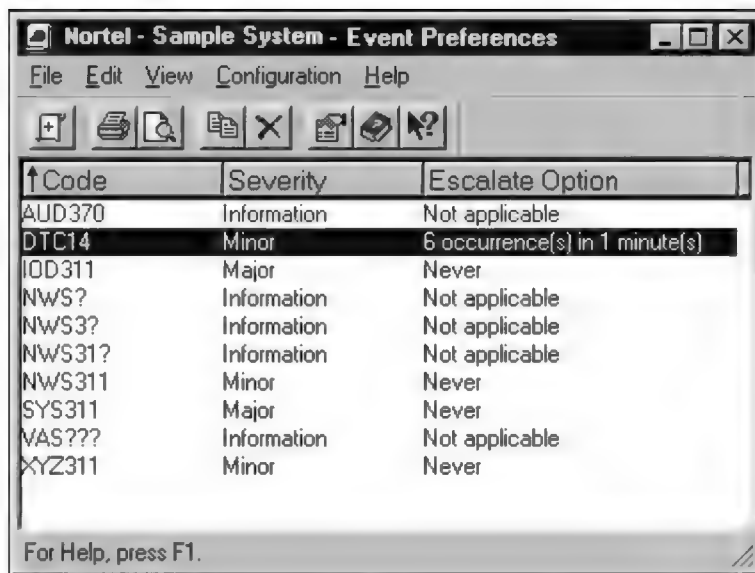
Figure 15
Alarm Banner window



Event Preferences

You can customize alarms for this system by changing the default alarm severity and escalation threshold using the Event Preferences window (Figure 16). To open the Event Preferences window, select **Event Preferences** from the **Configuration** menu in the Events window

Figure 16
Event Preferences window



Changing alarm severity or escalation

Use the **Event Preferences** command in the **Configuration** menu to specify the severity of events (critical, major, minor, or event). These options are set on a per-system basis. Typically, you modify these settings only when installing or upgrading the system.

All configuration options have default values that do not usually require modification. The system uses an Event Default Table which predefines the severity of all events.

Viewing the Event Default Table

Before changing an alarm definition, you may wish to look up the default settings in the Event Default Table. The Event Default Table contains the default severity settings of all system events. Use the table to verify default settings before adding event preferences.

To display the Event Default table, choose **Event Default Table** from the **Help** menu in the Event Preferences window.

Creating an Event Preference Definition

- 1 Choose **Event Preferences** from the **Configuration** menu—the Event Preferences window appears.
- 2 Choose **Add Event Preference** from the **Configuration** menu. The **Event Preference Properties** sheet appears—see Figure 17.

Figure 17
Event Preference Properties sheet

Nortel - Sample System - Event Preference Properties

General

Code: DTC14

Severity: Minor

Escalation Options

☒ Escalate Escalation Count 6 occurrence(s) in 1 minute(s)

OK Cancel Apply Help

- 3 In the **Code** field, type the alarm or event ID.

The ID includes the event category (such as **BUG**, or **NWS**) and the five-digit event number.

You may use the wildcard symbol **?** to represent a group of error code numbers. For example, **NWS3??** represents all error codes between NWS300 and NWS399.

- 4 To change the alarm severity, press the down arrow in the **Severity** field and choose a setting from the popup menu.
- 5 To change the escalation threshold, check the **Escalate** box. Type a number in the **Escalation** field.

The escalation setting defines the maximum number of times an event can occur within a defined period of time (the global time window) before it escalates to the next higher level of severity. For example, if you set escalation to “10 occurrences in 1 minute” for a minor alarm, the alarm will escalate to a major alarm when it occurs more than 10 times within a 1 minute period.

The global time window is set in the Meridian 1, and can range from 0 to 60 seconds.

- 6 Click **OK**.

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Maintenance Windows

The Meridian 1 switch has over 600 overlay-based maintenance commands and over 200 types of circuit cards to support its powerful capabilities. To maintain a Meridian 1, you must remember (or look up) which overlay has the appropriate commands and the syntax of each command—an enormous task!

Welcome to Maintenance Windows. The 37 Maintenance Overlays are now grouped into eight hardware-related windows to allow you to perform all maintenance tasks without having to remember or look up any overlay-based commands. The new interface provides a comprehensive view of Meridian 1 hardware configuration with the following benefits:

- Quickly see the equipped hardware. The hardware list works like a spread sheet data view—you can scroll through the list, sort the list, and select items for changing
- See Enabled/Disabled of the hardware status in *real time*
- Select an item from the list and apply a Maintenance command from the right-mouse button popup menu
- Print the list or copy it to a spreadsheet
- Select a TN or DN and print the TN/DN block

For example, to disable a network loop, you click on the loop and choose the **Disable** command from the menu. Maintenance Windows loads the appropriate overlay, executes the command, and displays the result of the action in a window that you can scroll and save.

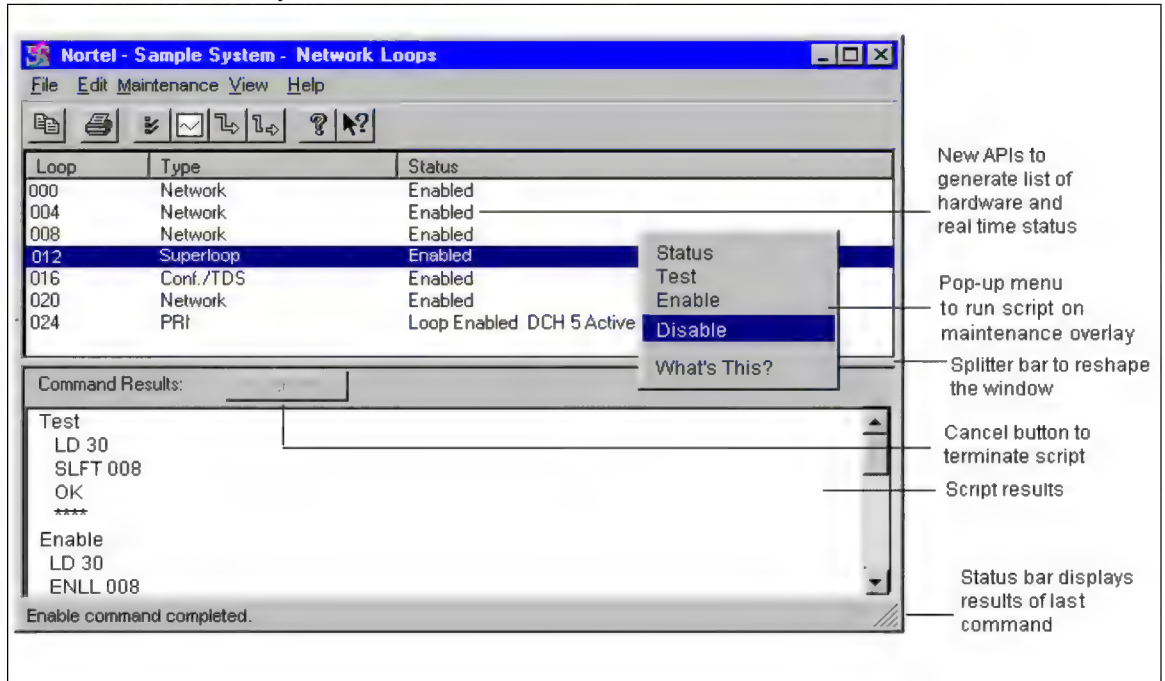
Launching a Maintenance Windows application

You launch Maintenance Windows applications from the M1 System window.

Under **Core Equipment**, Double-click the icon for the desired Maintenance Windows application to launch that application. The appropriate window appears. Each application is described in detail in at the end of this chapter.

For example, double-click on the **Network Loops** icon to open the Network Loops window. See Figure 18. Each loop is listed, along with descriptive information. From this window, you can sort this information, select a loop and run maintenance commands, and get help on the selected loop.

Figure 18
Meridian 1 Network Loops



Performing a maintenance task on an item

To perform a maintenance task on a card, loop, shelf, and so on, follow these steps:

- 1 Open the appropriate Maintenance Windows application.
- 2 Select the item from the list.
- 3 Choose a command from the **Maintenance** menu, the toolbar, or by using the right mouse button popup menu. A confirmation dialog appears for potentially destructive commands.
- 4 The script appears in the command result section of the window, followed by the overlay output.

Menu Commands

Each menu command is designed to be fully documented in on-line help. The Status Bar provides useful information on the script to run (see “Using the Status Bar” on page 52).

You can also read **What’s This** help on any menu command. Press **<Shift><F1>** (or select **What’s This** from the **Help** menu) and select the command for full on-line documentation.

The **Maintenance** menu is unique for each type of hardware, and is also designed to be fully documented in on-line help. In addition to the information provided in the Status Bar, you can read **What’s This** help on any menu command as described above.

Queueing scripts

If the Meridian 1 is currently processing another user’s script, your command is placed in a queue. You must wait until your script is finished processing before you can choose another **Maintenance** menu command. However, while you are waiting, you can perform maintenance tasks on another type of system component using a different Maintenance Windows application.

Cancelling scripts

To remove a command from the queue or to cancel a command in progress, click **Cancel** or press the **<Esc>** key. If a command is in progress, **Cancel** aborts the current command and overlay by sending four stars (****).

Refreshing the hardware status in the list

The hardware status in the list is updated as follows:

- The list is updated every few seconds even if there is no activity on the PC. You specify the interval on a per-window basis. See the **About Maintenance Windows** item in the **Help** menu.
- The selected object status is updated on every PC after every script. Thus, disabling a port from one PC updates its status on all other PCs.
- The entire list is updated after some scripts because multiple objects are affected. Example: Disable MSDL
- You can manually refresh the hardware status display by pressing <F5>.

Getting help on an error message

Sometimes, a maintenance command will result in a Meridian 1 error message, such as NWS010. To get help on the last error message (even if it has scrolled out of view) choose **Error Message** from the **Help** menu.

- Use the scroll bar to move to the error message. Double-click the error message.

or

- Select the error and choose **Error Message** from the **Help** menu.

Meridian 1 connection

Maintenance window applications are connected to the Meridian 1 by a Pseudo TTY (PTY). A PTY is a “software only” TTY that uses an I/O port address. PTYs are displayed in the I/O Ports window.

- One PTY is used for all Maintenance Windows users connected to the system (even from multiple PCs)
- One PTY is used for each System Terminal connection even if it is not logged into the overlays

Getting around in the window

You can use the window in the following ways:

Customizing the window and columns

- Resize the window and columns using standard Windows 95 controls.
- Use the horizontal or vertical scroll bars to move around in the alarm display.
- An ellipsis (...) after column text indicates there is more information than will fit in the column. You can resize the column by dragging the column divider to make more room for text.
- A splitter bar divides the window into two display areas. Drag the splitter bar to change the sizes of the card list and command results display areas.

Sorting the list

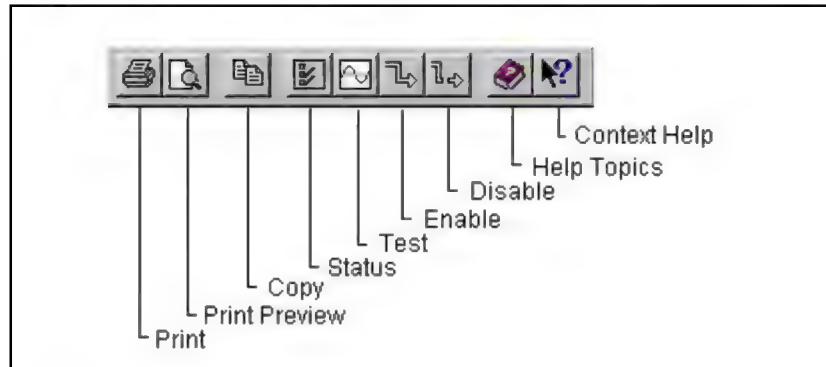
By default, items are listed in an order that makes sense for that application. You can sort the list according to another column by clicking in that column heading. Click to sort in ascending order (an “up” arrow appears in the heading); click again for descending order (“down” arrow).

Note: For help on the definition of any column in the list, click **What’s This** in the **Help** menu, and then click the column title.

Using the Toolbar

The Toolbar gives you quick access to selected commands. Each button is documented in the on-line help. See Figure 19.

Figure 19
CPU toolbar



Using the Status Bar

To display or hide the Status Bar located at the bottom of the window, use the **Status Bar** command in the **View** menu.

The Status Bar describes actions of the menu commands as you use the mouse to navigate through menus. When you select a **Maintenance** menu item, the status bar displays the following:

- The type of object selected
- The first overlay command in the script

When you run a **Maintenance** menu command, the Status Bar describes the progress of the command while it executes. For example, the Status Bar shows “Enable command in progress” when you choose an **Enable** command.

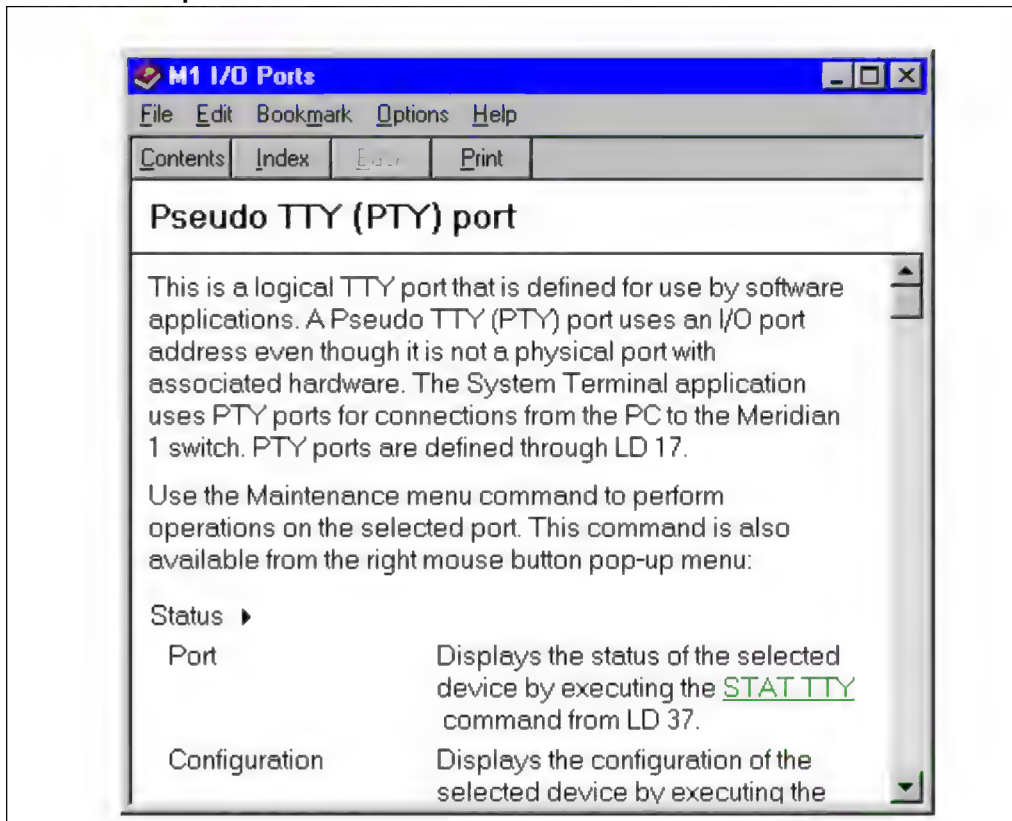
The Status Bar also describes the actions of the Toolbar buttons as you press them.

Full documentation in on-line help

Each each Maintenance Windows application has been designed to be fully documented in the on-line help. Each menu command, button, and field is documented. Please be sure to consult the on-line help if you wish to get more detail about any of these items.

For help on an object in a list, select the item and use the right mouse button to select **What's This** help. Descriptive information on the item appears. For example, ask for help on a Pseudo TTY object and the window shown in Figure 20 appears.

Figure 20
What's This help on PTY



Printing and copying

You can print Maintenance Windows information by selecting the lines to print in the list or the command results area (or the entire section), and selecting **Print** from the **File** menu. Select **Print to File** in the Print dialog to export the data for use in a spreadsheet or other application.

You can also copy the list and paste the information into a word processor or spreadsheet application. Select **Copy** from the edit menu.

Maintenance window menus

The Maintenance window includes the following menus in the menu bar—keyboard shortcuts are shown after the command names:

Table 15
File menu

Command	Description
Print <Ctrl>P	Prints the command results or selected hardware in the list.
Print Preview	Displays the information on the screen as it would appear in print.
Print Setup	Selects a printer and printer connection.
Save As	Saves the current set of command results to a file. This command performs a one-time save, unlike the Capture command which continues saving new command results to the file as they occur.
Capture	Captures new command results as they occur and saves them to a file.
Close	Closes the window.

Table 16
Edit menu

Command	Description
Copy <Ctrl>C	Moves a copy of selected text in the command results or selected items in the list to the clipboard.
Select All <Ctrl>A	Selects all text in the Command Results area or all items in the list.

Table 17
Maintenance menu

These menu items depend on the hardware selected in the list. See the end of this chapter for the hardware and commands supported. Shown below are the typical types of menus with their shortcut keys.

Command	Description
Status<Ctrl>R	Displays detailed status information for the selected hardware.
Test<Ctrl>T	Performs the appropriate tests on the selected hardware.
Enable<Ctrl>W	Restores the selected hardware to service.
Disable <Ctrl>D	Removes the selected hardware from service

Table 18
List menu

Command	Description
Reload <F5>	Reloads the list from the Meridian 1.
Stop Loading	Stops the loading of the list from the Meridian 1.

Table 19
View menu

Command	Description
Status Bar	Displays or hides the Status Bar. A check mark appears next to the command when the Status Bar is displayed.
Toolbar	Displays or hides the Toolbar. A check mark appears next to the command when the Toolbar is displayed.

Table 20
Help menu

Command	Description
Topics	Displays an index of help topics
What's This?	Provides context-sensitive help on any pull-down menu command or toolbar button. Clicking anywhere else takes you to the first topic in the help topic list. This operation is also available in the right mouse button popup menu.
Error Message <Ctrl>E	Displays help for the selected error message in the Command Results area or the last error message if nothing is selected.
I/O Navigator <Ctrl>G	Displays a dialog box that allows you to quickly jump to help on any overlay, prompt, command, or error message.
About Maintenance Windows	Displays version information on this release of the application. Also contains an option for setting the background refresh rate.

Feature Limitations

- Not all hardware maintenance commands are supported. See the following sections for the list of supported hardware and commands.
- Only one user can access a maintenance overlay at a time (this is an existing limitation). Commands issued from a Maintenance window will be queued if:
 - A TTY user has loaded a maintenance overlay
 - Another Maintenance window (same or different user) is running a script that uses a maintenance overlay
- Only one command can be issued from a Maintenance window at a time (that is, you must wait until the first command is completed before issuing another).
- One Pseudo TTY port is required for Maintenance Windows (regardless of the number of windows and logged-in users). Each instance of the System Terminal window requires an additional Pseudo TTY port.
- Maintenance window menus are not context sensitive to the maintenance state of the selected Meridian 1 object. For example, the enable command will not be grayed out if the object is already enabled. You will get the same response as entering the enable command in the overlay (usually an error message stating that the card is already enabled).

Maintenance Windows applications

The Maintenance Windows applications are listed below and described in detail on the following pages.

Core CPU

The CPU window displays the status of cards in both CPU shelves on the Meridian 1 at the selected site.

I/O Ports

The I/O (Input/Output) Ports window displays the status of all I/O ports on the Meridian 1.

Network Groups

The Network Groups window displays the status of all Network Group Cards on the Meridian 1.

Network Loops

The Network Loops window lists all the network loops on the Meridian 1 system.

PE Shelves

The PE Shelves window displays the status of the Peripheral Controller Cards for each PE Shelf on the Meridian 1.

PE Cards

The PE Cards window displays the status of all EPE and IPE Peripheral Equipment cards for each PE Shelf on the Meridian 1.

PE Units

The PE Units window displays information for all PE units and Directory Numbers on the Meridian 1 system.

PRI/DTI Channels

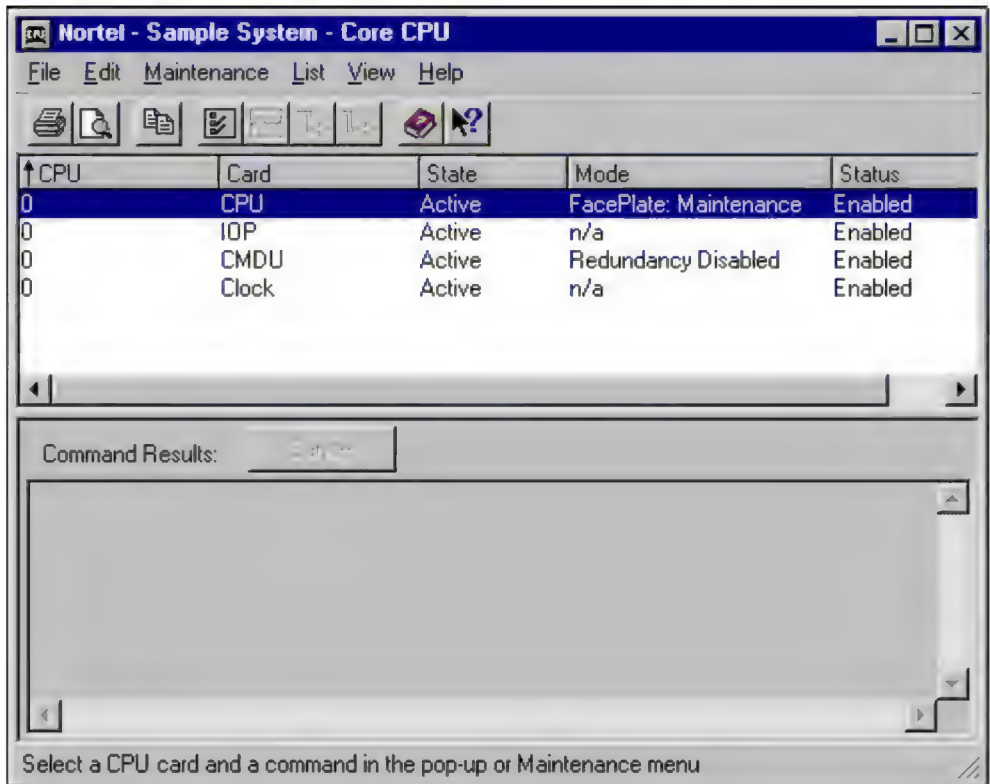
The PRI/DTI Channels window displays the B and D-channels on the selected digital trunk (for example, PRI loop). It is accessed by selecting the desired loop and the **Channels** menu item.

Core CPU window

The Core CPU window displays the status of all cards in both of the CPU shelves on the selected Meridian 1 system.

From the System window, under **Core Equipment**, double-click **Core CPU** icon—the Core CPU window appears as shown in Figure 21.

Figure 21
CPU window



Core CPU window column descriptions

The Core CPU window provides columns of information about each card installed in the system. The Core CPU list is initially sorted by CPU number (there may be one or two CPU shelves, depending on the hardware type). Table 21 describes each column.

Table 21
Core CPU window column descriptions

Column	Description
CPU	Shelf number associated with the card
Card	CPU card type; the following types are listed: Core Processing Unit (CPU) cards Core Multi-Disk Unit (CMDU) cards Input/Output Processor (IOP) cards Clock Controller (Clock) cards Fiber cards (Option 11C only)
State	A card may be in an active or standby state
Mode	Mode applies only to CPU and CMDU cards: CPU cards may be in split or shadowed mode. The faceplate may be in Normal or Maintenance mode. CMDU cards may be in Redundancy enabled or Redundancy disabled mode.
Status	Current status of the card. For a more detailed status report, use the Status command in the Maintenance menu.
Command Results	Displays the overlay commands when you choose a Maintenance menu command

Supported Commands

Table 22 lists the hardware and commands supported. Use System Terminal for hardware or commands not supported by the Core CPU window.

Table 22
Supported Core CPU Commands

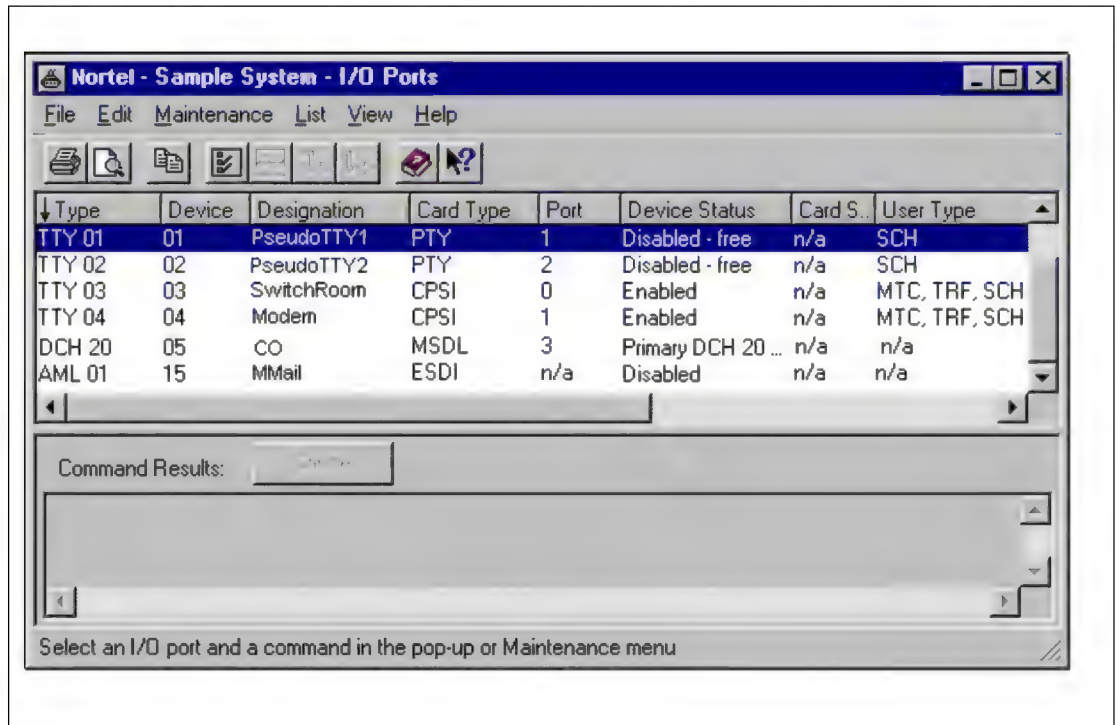
Hardware	Supported	Commands supported
CP cards	yes	all, except split and shadow CPU commands
I/O Processor (IOP) cards	yes	all except disable IOP and Ethernet commands (user will loose connection to M1.
Core Multi-Disk Units (CMDU)	yes	all
Clock Controller	yes	all
Fiber Optical Link (Option 11C)	yes	all, includes cabinet enable/disable commands

I/O Ports window

The I/O (Input/Output) Ports window displays the status of all I/O ports on the Meridian 1.

From the System window, under **Core Equipment**, double-click the **I/O Ports** icon. The I/O Ports window appears as shown in Figure 22.

Figure 22
I/O Ports window



I/O Ports column definitions

The I/O Ports window provides columns of information about each port in the system. The I/O Ports list is initially sorted by port type and number. Table 23 describes each column.

Table 23
Column descriptions

Column Name	Description
Type	Type and number of I/O port: — Teletype (TTY) — Printer (PRT) — Application Module Link (AML) — D-Channels
Device	Physical address of the card or port.
Designation	Port name.
Card Type	Card containing the I/O port: — Serial Data Interface Card (SDI) — Enhanced Serial Data Interface Card (ESDI) — D-channel Interface Card (DCHI) — Multi-purpose Serial Data Link Card (MSDL)
Port	Port number on the card.
Device Status	Current maintenance status of the port.
Card Status	Current maintenance status of the card. Applies only to MSDL Cards.
User Type	Indicates current port usage. — ACD — Automatic Call Distribution printer

Table 23
Column descriptions

Column Name	Description
User Type (con't)	— APL — Auxiliary Processor Link
	— ICP — Intercept Computer Update Link
	— LSL — Low-speed AUX link
	— HSL — High-speed AUX link
	— XSM — System monitor
	— BGD — Background terminal
	— CTY — Call Detail Recording (CDR) TTY for CDR records
	— PMS — Property Management System Interface (PMS)
	— BUG — BUG messages included on port
	— CSC — Automatic Set Relocation and Attendant Administration messages (CSC) included on port
	— FIL — Output filtered messages included on port
	— MCT — Malicious Call Trace messages included on port
	— MTC — AUD, BUG, and ERR messages included on port
	— NOO — No overlay allowed on port
	— SCH — Service Change or any database change included on port
	— TRF — Traffic reports included on port

Supported Commands

Table 24 lists the supported I/O Ports hardware and commands. Use System Terminal for hardware or commands not supported by the I/O Ports window.

Table 24
Supported I/O Ports Commands

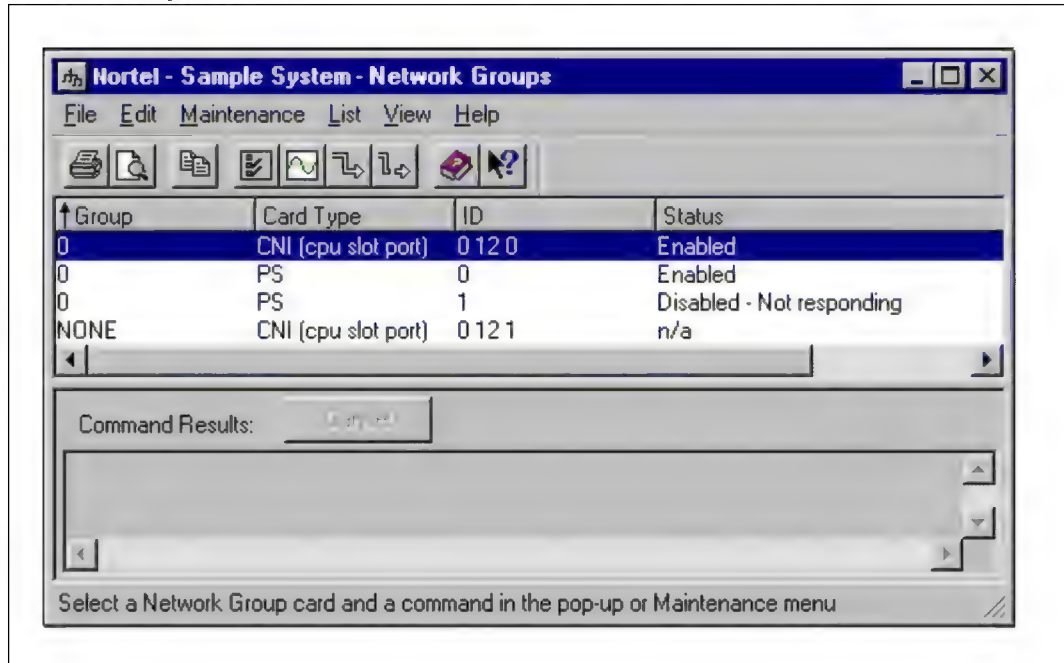
Hardware	Supported	Commands supported
TTY port on SDI/MSDL card	yes	all except test command
XSM (System Monitor)	yes	all
PRT - Printer on SDI/MSDL card	yes	all except test command
PTY - Pseudo TTY port	yes	all
AML - (Application Module Link) on an ESDI/MSDL card	yes	all except message monitor commands
ACD High Speed Port on SDI/MSDL card	yes	all except message monitor commands
ACD Low Speed Port on SDI card	yes	all except message monitor commands
Auxiliary Processor Links on any SDI/MSDL card	yes	all except message monitor commands
Intercept Computer Update (ICU) port on any SDI/MSDL card	yes	all except ICP application commands
D-channel on an MSDI/DCHI card	yes	all except message monitor commands
Single Terminal Access port	yes	all
MSDL card	yes	all except download version x of software
ACD Low Speed Link for 11C	yes	all
ICCM ELAN for ICCM	yes	all
DPNSS DDSL (D-channel)	yes	all
APNSS LSSL (D-channel)	yes	all

Network Groups window

The Network Groups window displays the status of all Network Group Cards on the Meridian 1.

From the System window, under **Core Equipment**, double-click the **Network Groups** icon. The Network Groups window appears as shown in Figure 23.

Figure 23
Network Groups window



Network Groups column definitions

The Network Groups window provides columns of information about each port in the system. The Network Groups list is initially sorted by Group number. Table 25 describes each column.

Table 25
Column Descriptions

Column Name	Description
Group	Network group identification number.
Card Type	Each network group can include the following cards: — Core to Network Interface cards (2 cards) — Peripheral Signaling cards (2 cards) — InterGroup Switch cards (4 cards)
ID	Card identification number. ID for CNI cards include the CPU number, slot number, and the port number.
Status	Current status of the card. For a more detailed status report, use the Status command on the Maintenance menu.

Supported Commands

Table 26 lists the supported hardware and commands. Use System Terminal for hardware or commands not supported by the Network Groups application.

Table 26
Supported Network Groups commands

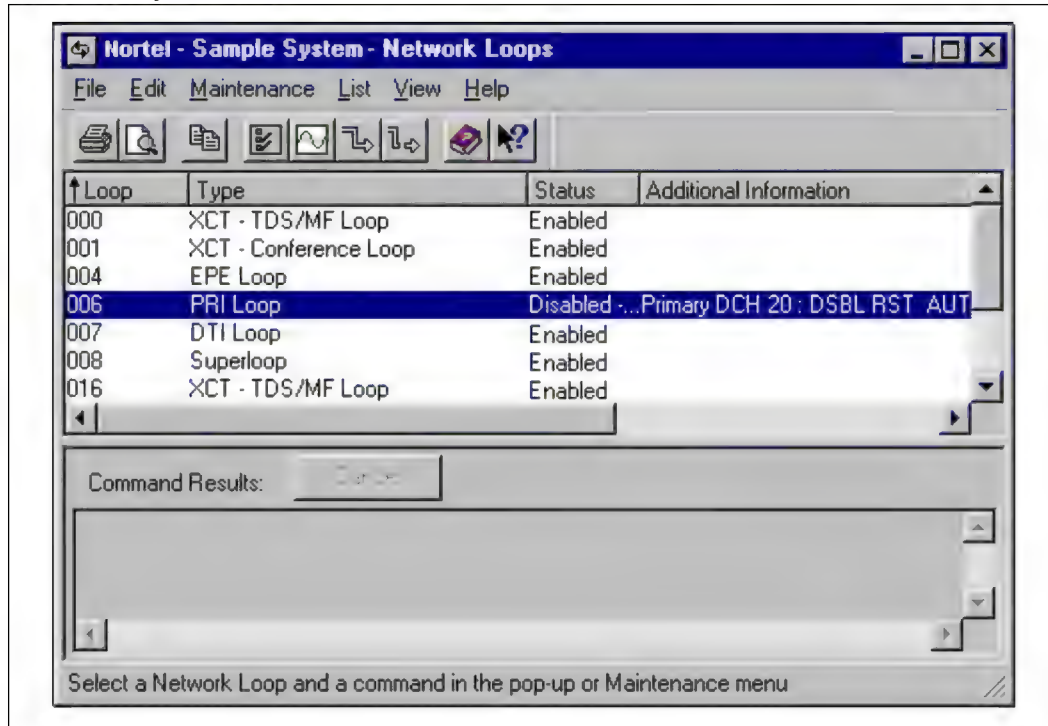
Hardware	Supported	Commands supported
Core to Network Interface (CNI) card	yes	all
Peripheral Signalling card	yes	all
InterGroup Switch card	yes	all

Network Loops window

The Network Loops window lists all the network loops on the Meridian 1 system.

From the System window, under **Core Equipment**, double-click the **Network Loops** icon. The Network Loops window appears as shown in Figure 24.

Figure 24
Network Loops window



Network Loops column descriptions

The Network Loops window provides columns of information about each loop in the system. The Network Loops list is initially sorted by Loop number. Table 27 describes each column.

Table 27**Network Loops window column descriptions**

Column	Description
Loop	Loop number.*
Type	Type of Loop
Status	Current status of the card. For a more detailed status report, use the Status command in the Maintenance menu.
Additional Information	Displays the status of digital trunk D-channel
Note: *Loop is replaced by slot for Option 11C.	

Supported Commands

Table 28 lists the supported hardware and commands. Use System Terminal for hardware or commands not supported by the Network Loops window.

Table 28
Network Loops

Hardware	Supported	Commands supported
Enhanced PE (EPE) Network Loop card	yes	all except test timeslot and LD45 XCON commands
Superloop cards	yes	all except LD 45 XCON command and background continuity tests.
Digital Trunk Interface (DTI/DTI2) cards	yes	all
Primary Rate Interface (PRI/PRI2) cards	yes	all
Remote Peripheral Equipment (1.5 and 2.0 Mb/s) cards	yes	all
Meridian ISDN Signaling Processor (MISP) cards	yes	all except application download and Meridian Packet Handler commands
DPNSS/DASS2 cards	yes	all
APNSS cards	yes	all
Conference cards	yes	all
Tone and Digit Switch cards	yes	all
Conf/TDS cards	yes	all
Fiber Remote (FNET) card	yes	all
Multifrequency Sender cards	yes	all
Phantom loops	yes	None. There are no overlay commands for these loops.

PE Shelves window

The PE Shelves window displays the status of the Peripheral Controller Cards for each PE Shelf on the Meridian 1.

From the System window, under **Core Equipment**, double-click the **PE Shelves** icon. The PE Shelves window appears as shown in Figure 25.

Figure 25
PE Shelves window



PE Shelves column definitions

The PE Shelves window provides columns of information about each shelf in the system. The PE Shelves list is initially sorted by Controller card number. Table 29 describes each column.

Table 29
Column Descriptions

Column Name	Description
PE Controller	Identification number associated with the PE Controller Card.
Type	Type of controller card.
Location	Location of the PE shelf containing the PE Controller Card.
Status	Current status of the PE Controller Card.
Seg 0 to Seg 3	Identifies the loop supported by each of the four PE shelf segments.

Supported Commands

Table 30 lists the supported hardware and commands. Use System Terminal for hardware or commands not supported by the PE Shelves window.

Table 30
Supported PE Shelves commands

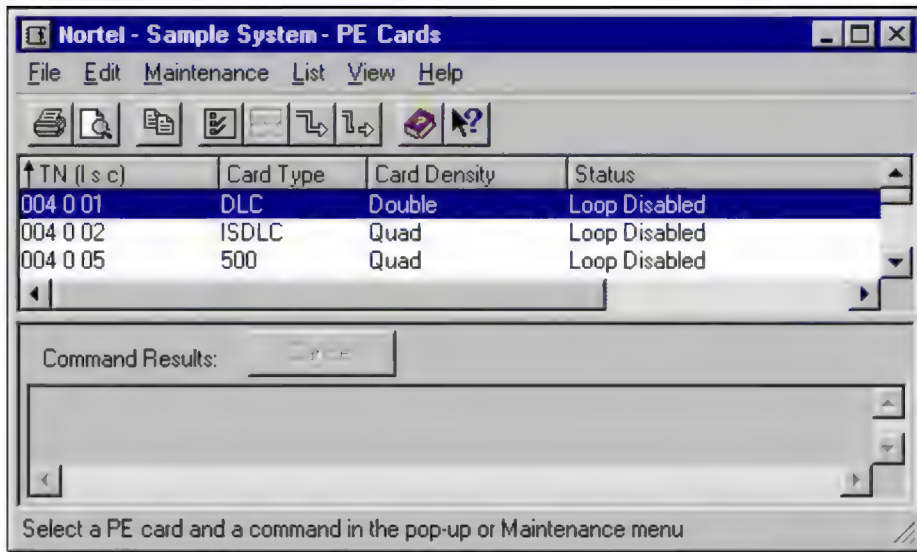
Hardware	Supported	Commands supported
Peripheral Controller (XPEC) cards	yes	all
Fiber Remote (CARR)	yes	all
Fiber Remote (FPEC)	yes	all

PE Cards window

The PE Cards window displays the status of the all Peripheral Equipment Cards for each PE Shelf on the Meridian 1.

From the System window, under **Core Equipment**, double-click the **PE Cards** icon. The PE Cards window appears as shown in Figure 26.

Figure 26
PE Cards window



PE Cards column definitions

The PE Cards window provides columns of information about each card in the system. The PE Cards list is initially sorted by TN. Table 31 describes each column.

Table 31
Column Descriptions

Column Name	Description
Terminal Number	Address of the card (loop shelf card). Note: TN is replaced with Slot for Option 11C. Tone Service in slot 0 is for DTR/XTD units 0-7, and DTR/XTD/MFC or MFR units 8-15. The individual units are displayed in the PE Units window.
Card Type	The type of PE card
Card Density	Density of the card (this can differ from loop density). — Single — Double — Quad — Octal
Status	Current status of the PE Card. The status is a text string up to 10 characters. This is the same text as output by the overlays.

Supported Commands

Table 32 lists the supported hardware and commands. Use System Terminal for hardware or commands not supported by the PE Cards window.

Table 32
Supported PE Cards commands

Hardware	Supported	Commands supported
IPE/EPE Line cards	yes	all
ISDLc cards	yes	all
IPE/EPE Trunk cards	yes	all
BRI Line cards	yes	all
BRI Signaling Processor (BRSC) cards	yes	all
Digitone Receivers (DTR)	yes	all
Multifrequency Receivers (DTR)	yes	all
Tone Detector cards	yes	all
Extended Tone Detector (XTD) cards	yes	all
Multifrequency Signaling (MFC/MFE/MFVE/MFK5/MFK6) cards	yes	all

PE Units window

The PE Units window displays information for selected PE units and Directory Numbers on the Meridian 1 system. From the System window, under **Core Equipment**, double-click the **PE Units** icon. The **Find PE Units** dialog box (Figure 27) appears to allow you to select a range of DNs or TNs. This helps you avoid uploading thousands of items.

To find by DN:

- Click Directory Number radio button. Enter a single DN or a range of DNs. Leave the From and To edit boxes empty to retrieve all DNs.

To find by TN:

- Click Terminal Number radio button. Enter a single TN or a range of TNs. For example, entering a loop number displays all TNs on the loop. Leave the From and To edit boxes empty to retrieve all TNs.

Figure 27
Find PE Units dialog

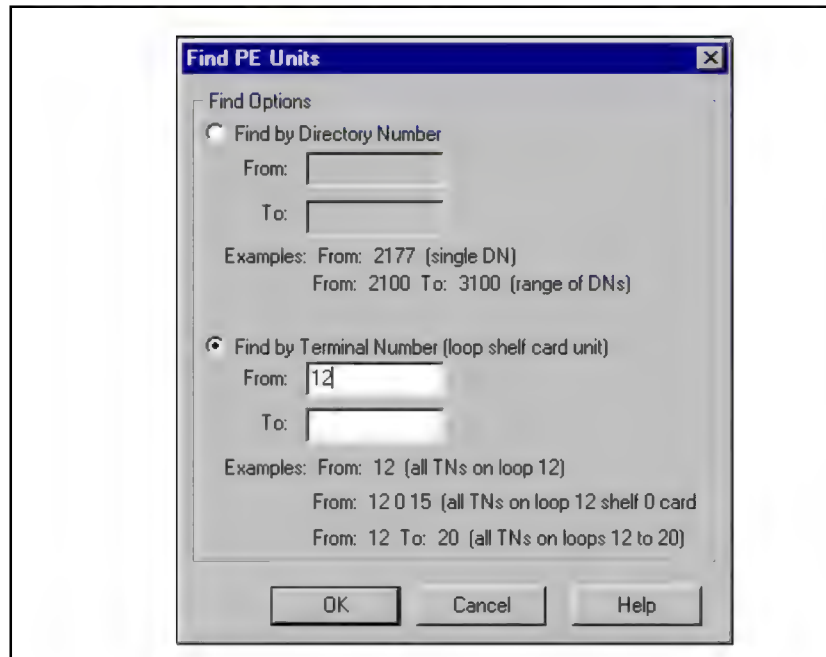


Figure 28
PE Units window (by TN)

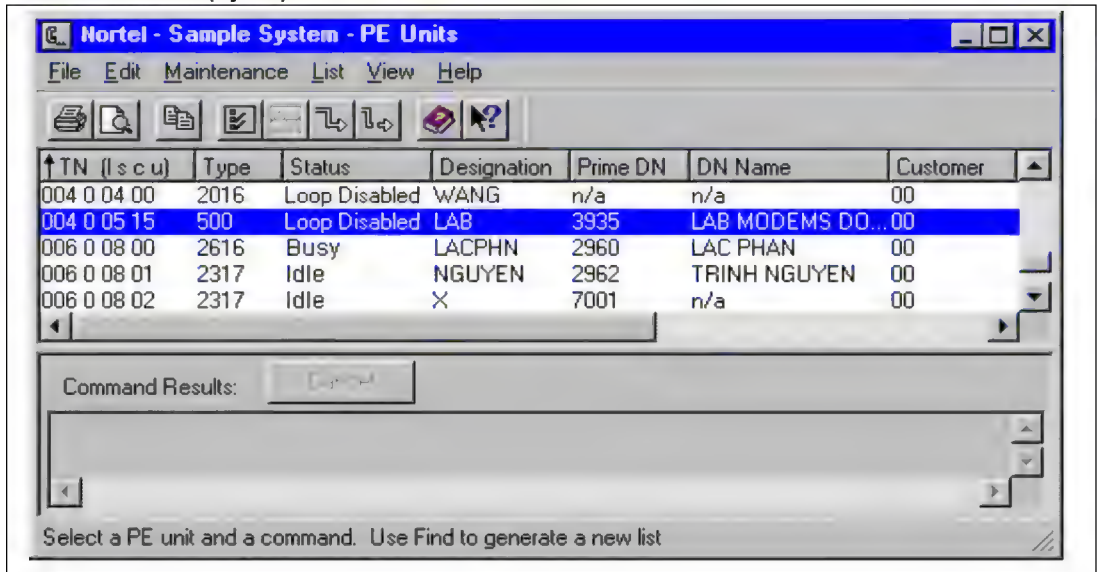
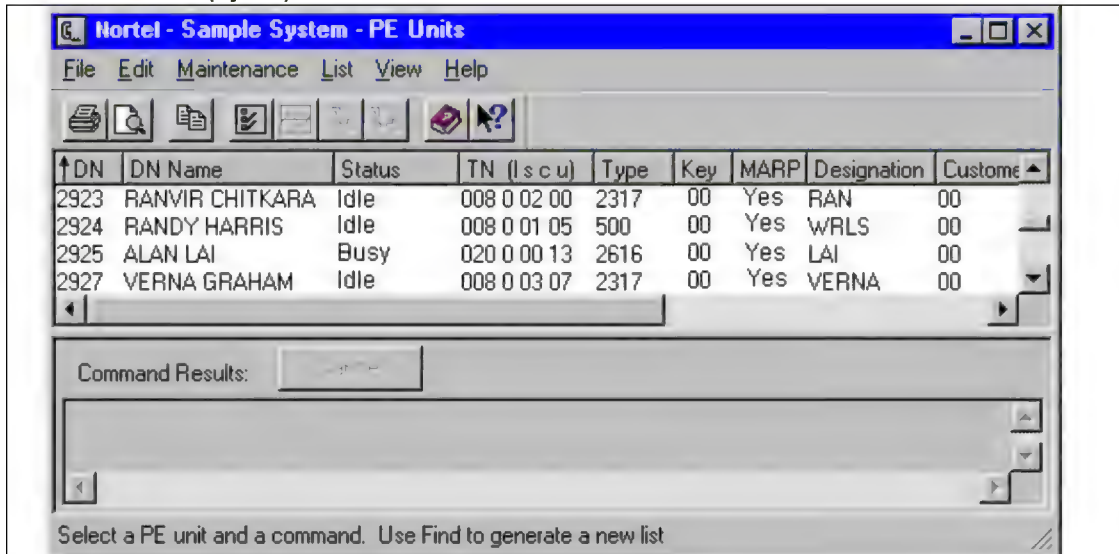


Figure 29
PE Units window (by DN)



PE Units column definitions

The PE Units window provides columns of information about each DN and TN in the system. The PE Units window is initially sorted by DN or TN number (depending on what you specified in the **Find PE Units** dialog box). Table 33 describes each column.

Table 33
Column definitions

Column Name	Description
TN	Terminal number address associated with the card. This address includes the loop, shelf, card, and unit number for all systems except Option 11. For Option 11 this address includes card and unit.
Type	Type of PE unit.
Status	Current status of the PE unit. For a more detailed status report, use the Status command on the Maintenance menu.
Designation	Additional information about the unit, such as location or cabling details, specified by the person who installed the unit.
Prime DN	Directory number (DN) associated with key 0 on the telephone.
DN Name	Name associated with the directory number.
Key	Key number to which the DN is assigned.
MARP	TN is a Multiple Redirection Prime TN.
Customer	Customer number associated with the PE unit.
NCOS	Network Class of Service number
Date	Last activity date (requires ODAS package).

Supported Commands

Table 34 lists the supported hardware and commands. Use System Terminal for hardware or commands not supported by the PE Units window.

Table 34
Supported PE Units commands

Hardware	Supported	Commands supported
500 - 500/2500 telephone	yes	all
1250 - M1250 Console	yes	all
2003 - 2003 telephone	yes	all
2006 - M2006 telephone	yes	all
2008 - M2008 telephone	yes	all
2009 - M2009 telephone	yes	all
2016 - M2016 telephone	yes	all
2018 - M2018 telephone	yes	all
2112 - M2112 telephone	yes	all
2216 - M2216 telephone (ACD)	yes	all
2250 - M2250 Console	yes	all
2317 - M2317 telephone	yes	all
2616 - M2616 telephone	yes	all
3000 - M3000 Touchphone	yes	all
ADM - Add-on Data Module	yes	all
AID - AIOD trunk	yes	all
ATT - QCW3/4 Console	yes	all
ATVN - Autovon trunk	yes	all
Note: The manual test command is not support for any trunk type. Option 11C Model TNs are not supported.		

Table 34
Supported PE Units commands (Continued)

Hardware	Supported	Commands supported
AWR - Automatic Wake-Up RAN/Music trunk	yes	all
BRI - Basic Rate Interface	yes	all
COT - Central Office Trunk	yes	all
CSA - CCSA trunk	yes	all
DIC - Dictation trunk	yes	all
DID - DID trunk	yes	all
DTD - Dial Tone Detector	yes	all
DTR - Digitone Receiver	yes	all
FEX - Foreign Exchange trunk	yes	all
FGDT - Feature Group D Trunk	yes	all
IDA - Integrated Digital Access	yes	all
ISA - Integrated Services Access trunk (ISDN)	yes	all
MCU - Communications Unit	yes	all
MDM - Modem/Data Module.	yes	all
MFC - Multifrequency Signaling	yes	all
MFE - Multifrequency Signaling for Sotel sender/receiver	yes	all
MFK5/MFK6 - Spanish KD3 MF Signaling	yes	all
Note: The manual test command is not support for any trunk type. Option 11C Model TNs are not supported.		

Table 34
Supported PE Units commands (Continued)

Hardware	Supported	Commands supported
MFR - Multifrequency Receiver (FGD)	yes	all
MFVE - Multifrequency versatile units	yes	all
MUS - Music trunk	yes	all
OOSS - Out of Service Terminal	yes	all
PAG - Paging trunk	yes	all
PWR - Power	yes	all
R232 - Data Access unit	yes	all
R422 - Data Access unit	yes	all
RAC - Real Analog Channel	yes	all
RAN - Recorded Announcement trunk	yes	all
RCD - Recorder trunk	yes	all
RDC - Real Digital Channel	yes	all
RLM - Release Link Main trunk	yes	all
Note: The manual test command is not support for any trunk type. Option 11C Model TNs are not supported.		

Table 34
Supported PE Units commands (Continued)

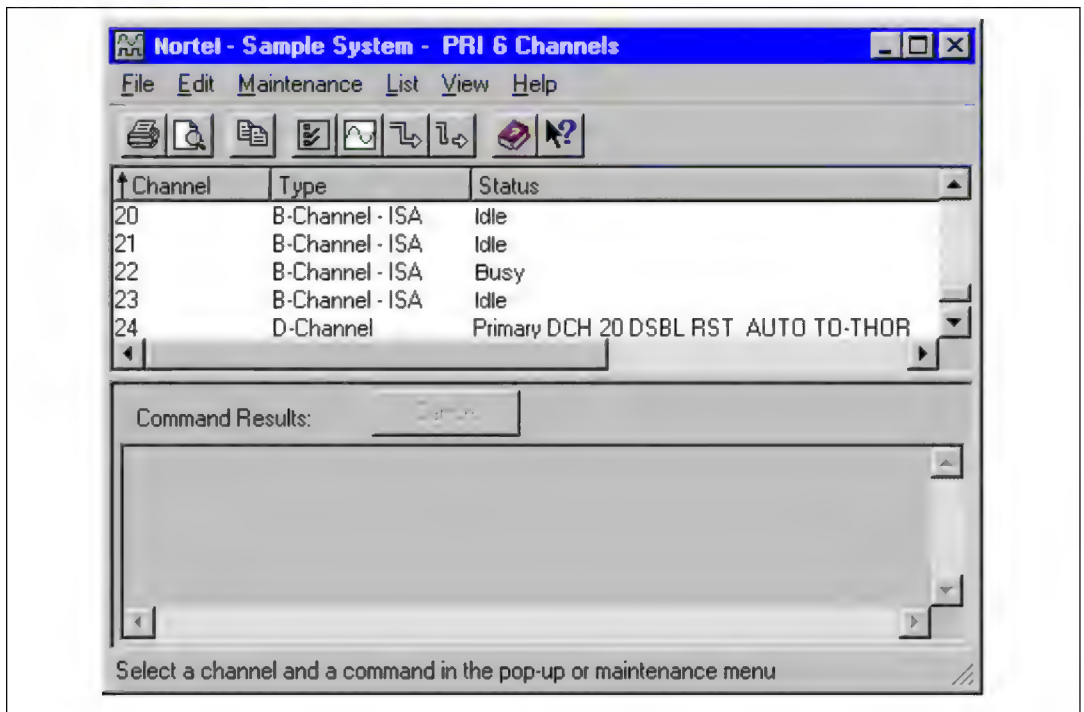
Hardware	Supported	Commands supported
RLR - Release Link Remote trunk	yes	all
SL1 sets	yes	all
TCON - Tandem Connection for MPH	no	none
TDET - Tone Detector	yes	all
TIE - TIE trunk	yes	all
VAC - Virtual Analog Channel	yes	all
VDC - Virtual Digital Channel	yes	all
WAT - Wide Area Telephone Service trunk	yes	all
XTD - Extended Dial Tone Detector and Digitone Receiver	yes	all
DN types: ACDN, ADCP, CDN, CDP, CHDN, DISA, DSDN, FCC, LDN, MCDN, NARS, PARK, RDB:, REFx, RLDN, RSA, SFP, SS25, T100, TSTx, VNS	yes	These are DNs which have no associated TN. Typically, the only command is print DN block.
Note: The manual test command is not support for any trunk type. Option 11C Model TNs are not supported.		

B and D-channels window

The B and D-channels window displays the channels on the selected PRI/DTI trunk. It allows you to execute overlay commands for a selected channel by choosing commands from the **Maintenance** menu. The results appear in the Command Results area of the window. The **Cancel** button allows you to terminate a command in progress.

From the System window, under **Core Equipment**, double-click the **Network Loops** icon. Select a PRI or DTI loop. From the **Maintenance** menu or the right mouse popup menu, select **Channels**. The B and D-channels window appears.

Figure 30
PRI/DTI Channels window



B and D-channels column definitions

The B and D-channels window provides columns of information about each loop in the system. The B and D-channels list is initially sorted by Channel number. Table 35 describes each column.

Table 35
Column definitions

Column Name	Description
Channel Number	Number associated with the channel. PRI loops may have 0-23 channels; PRI2 loops from 0-29 channels.
Type	Type of channel.
Status	Current status of the channel.

Supported Commands

Table 36 lists the supported hardware and commands. Use System Terminal for hardware or commands not supported by the B and D-channels window.

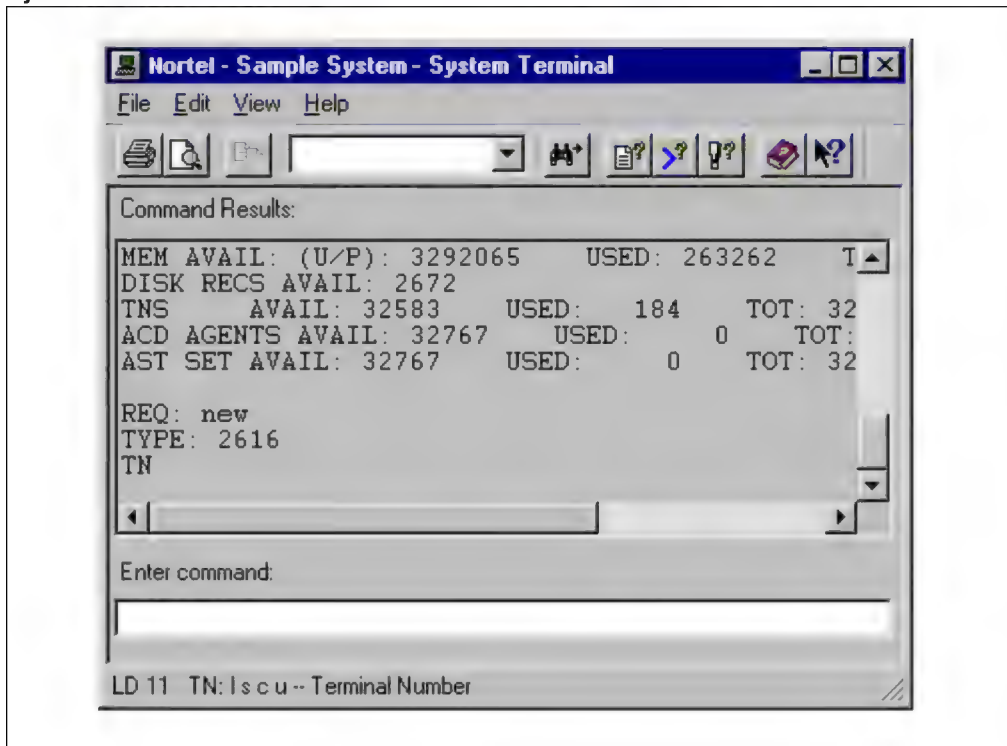
Table 36
B and D-channels

Hardware	Supported	Commands supported
The window contains the list of channels for the selected loop. D-channels can also be accessed from the I/O ports window. DPNSS loops have both real and channels	yes	all, except enable all channels on DTI cards and loopback test commands.

System Terminal

System Terminal helps you perform Meridian 1 overlay-based tasks directly through the Meridian 1 TTY interface. System Terminal provides on-line, context sensitive help for overlay prompts and error messages.

Figure 31
System Terminal window



Launching System Terminal

Once you connect to the system of interest, launch System Terminal by selecting **System Terminal** from the **Maintenance** menu or toolbar in the System window. Enter your system user ID and password in the System Login dialog.

The System Terminal window displays all system events as they occur. It also gives you direct access to any overlay.

Note: Each active System Terminal connection requires a pseudo-TTY (PTY) port. PTYs are software-only I/O ports. The System Terminal and Maintenance Windows applications use these ports to access the overlays. A message informs you if the window is not currently available.

Getting around in the window

The System Terminal window includes the following:

- An **Enter Command** edit box in which you type overlay commands
- A **Command Results** list box that displays your interaction with the overlays and the results
- Links to on-line help are available for the following:
 - Help on the current overlay
 - Help on the current prompt
 - Help on the last or selected error message
 - One-line description of prompts in the status bar

You use overlays just as you did before. The one minor difference is that you type into an edit box rather than the last line of the screen as with TTY and Terminal Emulation applications. You still use the **<Enter>** key to send the typed-in data (an overlay command or response to a prompt).

Advantages over a TTY

You now have the following advantages over the old TTY:

- Get help on a Meridian 1 error message, prompt, or overlay
- You can type in lower case and use the backspace key
- **Copy** and **Paste** in the **Enter** Command box (useful for repeated commands with only a TN change)
- Scroll back in the command results
- **Copy**, **Print** and **Save** the command results
- Use the Esc key to abort an overlay (this is the same as typing *****).
- Capture output to a file as well as to the screen

Getting help on the current overlay

You can get more help on the currently loaded overlay using the **Current Overlay** command in the **Help** menu. The help file is organized in a similar fashion to the *I/O Guide*.

Note: The **Current Overlay** menu is disabled when you are not in an overlay.

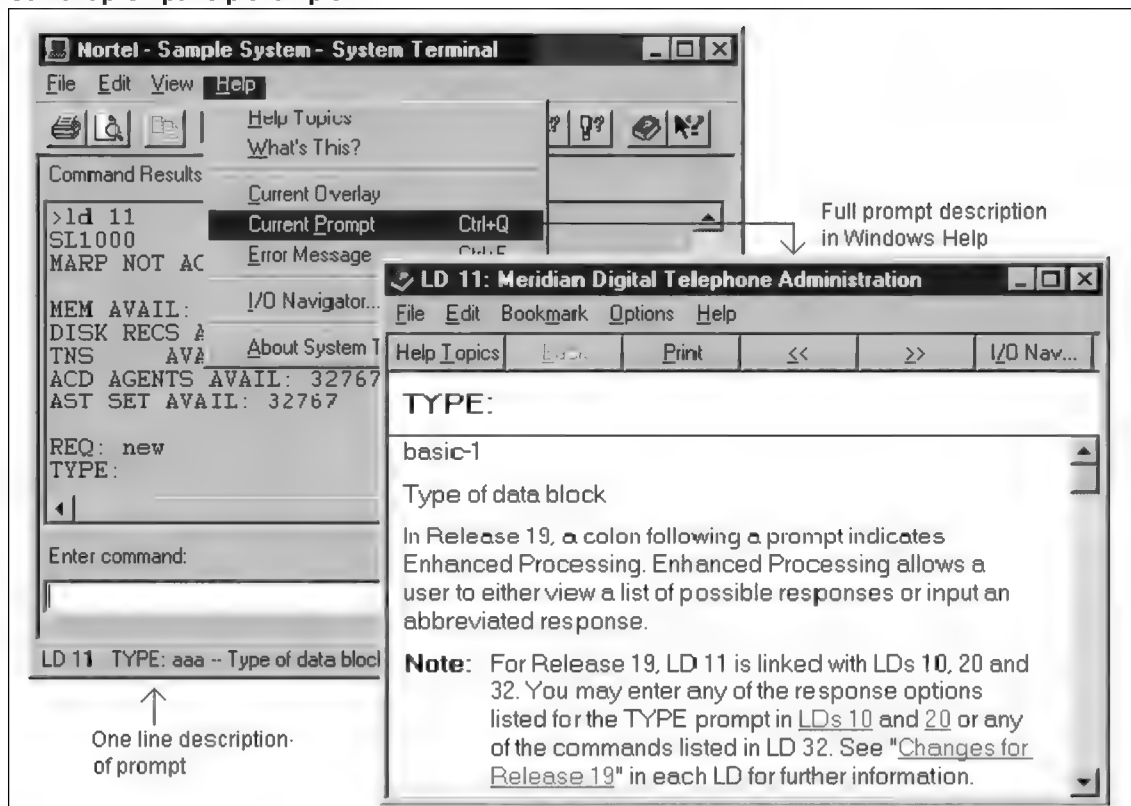
Example

If you are in overlay 10, you can select **Current Overlay** from the **Help** menu, and then navigate within help to the **Add telephone** prompt sequence. You can click on any prompt in the sequence. This displays the help window for that prompt—the same as help on **Current Prompt**.

Getting help on the current prompt

Figure 32 shows an example of the help you can get on an administration overlay. You load the overlay and respond to the prompts, one at a time. This help guides you as you load the overlay and respond to the prompts.

Figure 32
Current prompt help example



If an overlay is currently loaded, the Status Bar at the bottom of the window provides a short description of the current prompt. If the one-line description is not enough, you can read a full description of the prompt in Windows Help. Choose **Current Prompt** from the Help menu.

Note: Help on the current prompt is disabled if you are not in an administration overlay.

Getting help on an error message

System Terminal can distinguish error messages from the other text in **Command Results** list box. The **Error Message** command in the **Help** menu provides the error description in Windows Help.

You can get help on an error message in the following ways:

- Double-click an error message anywhere in the Command Results.
- Select the **Error message** command in the **Help** menu to get help on the last error message (even if it is scrolled off the screen).
- Select an error message anywhere in the Command Results, then select the **Error message** command in the **Help** menu.
- Select the **I/O Navigator** from the **Help** menu.

Note: You can also get help on Meridian Mail System Error and Event Reporting (SEER) messages using the I/O Navigator.

System Terminal Menus

The System Terminal window includes the following menus in the menu bar—keyboard shortcuts are shown after the command names:

Table 37
File menu

Command	Description
Print <Ctrl>P	Prints the command results.
Print Preview	Displays the information on the screen as it would appear in print.
Print Setup	Selects a printer and printer connection.
Save As	Saves the current set of command results to a file. This command performs a one-time save, unlike the Capture command which continues saving new command results to the file as they occur.
Capture	Captures new command results as they occur and saves them to a file.
Close	Closes the System Terminal window.

Table 38
Edit menu

Command	Description
Cut <Ctrl>X	Deletes selected text and stores it on the clipboard.
Copy <Ctrl>C	Moves a copy of selected text to the clipboard. Copy is especially useful when you need to enter many similar commands. Simply copy a command from the Command Results area and paste it in to the Enter Command field, then edit where necessary.
Paste <Ctrl>V	Inserts the clipboard contents into the Enter Command field.
Clear Command Results	Deletes all text in the Command Results area.
Select All <Ctrl>A	Selects all text in the Command Results area.

Table 39
View menu

Command	Description
Status Bar	Displays or hides the Status Bar. A check mark appears next to the command when the Status Bar is displayed.
Toolbar	Displays or hides the Toolbar. A check mark appears next to the command when the Toolbar is displayed.

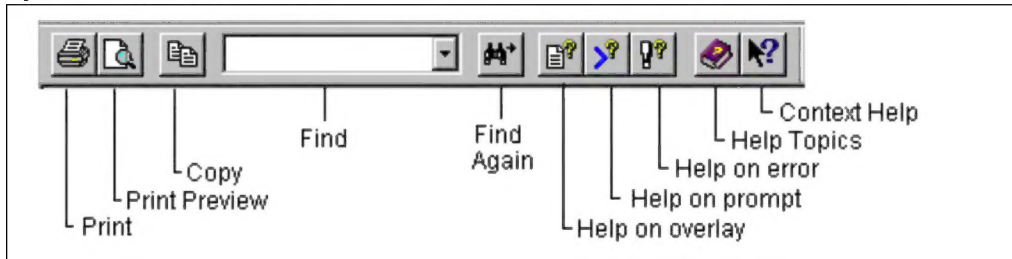
Table 40
Help menu

Command	Description
Topics	Displays an index of help topics
What's This?	Provides context-sensitive help on any pull-down menu command or toolbar button. Clicking anywhere else takes you to the first topic in the help topic list. This operation is also available in the right mouse button popup menu.
Current Overlay	Displays general help topics for the overlay that is currently loaded. For help on another overlay, use the I/O Navigator command in the Help menu. The Current Overlay command is unavailable when no overlay is currently loaded.
Current Prompt <Ctrl>Q	Displays help on the current prompt while in an administration overlay. The Status Bar also provides a short description of the current prompt.
Error Message <Ctrl>E	Displays help for the selected error message in the Command Results area or the last error message if nothing is selected.
I/O Navigator <Ctrl>G	Displays a dialog box that allows you to quickly jump to help on any overlay, prompt, command, or error message.
About System Terminal	Displays version information on this release of the application.

Toolbar

The System Terminal toolbar offers several useful shortcuts to the menu commands. See Figure 33

Figure 33
System Terminal toolbar

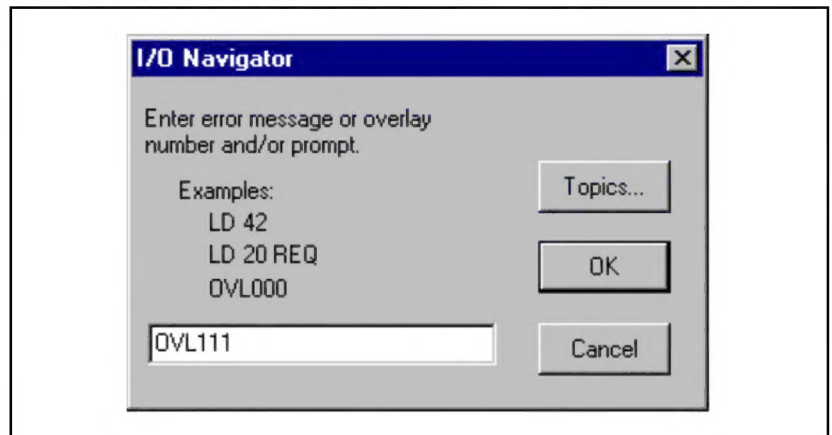


Note: The **Find** and **Find Next** icons in the toolbar allow you to search the Command Results for the text string that you enter in the **Find box**. **Find** is case-sensitive. The search begins down from the current location.

Using the I/O Navigator

The I/O Navigator displays a dialog box that allows you to quickly jump to help on any overlay, prompt, command, or error message.

Figure 34
I/O Navigator dialog



Select **I/O Navigator** from the overlay's **Help** menu or from the **I/O Navigator** buttons in the appropriate Help files. Type the overlay number, error message number, or prompt in the text entry field and click **OK**. Help information for the specified overlay, prompt, or error message appears.

Entering an overlay (LD XX) or error code mnemonic (ERR, BUG) takes you to the contents page of the appropriate help file. Entering the error code (BUG3001) or an LD number and a prompt takes you to the Help topic page.

- If the prompt or error message you specify does not exist, the help search dialog appears with the nearest match selected.
- If the overlay number or error message type do not exist, a “Help file not found” information dialog appears.
- The **I/O Navigator** command can be used from within Help. You do not need to be connected to a switch.
- There are some combination overlays (for example, one help file describes two overlays). You can enter either of the overlay numbers. These cases are:
 - LD 36 and LD 41
 - LD 40 and LD 42
 - LD 20, LD 21, and LD 22
 - LD 84 and LD 85
- Leading zeros are not required in error messages. For example, entering SCH22 or SCH022 will find the description for SCH0022.
- To look up Meridian Mail System Error and Event Reporting (SEER) messages, enter XXXYY (where XXX is the message class, and YY is the message number—no mnemonic is required). For example, enter 11102.

Meridian 1 Network Management for SPECTRUM User guide

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Document release: Preliminary 0.3

Date: February 1997

Printed in the United States of America